Hindu 9

HOERNLE (A. F. Rudolf) 1841-1918

107. MS. in English, on paper : written between 1913 and 1918 by Prof. A. F. R. Hoernle : 12¾ × 8¼ in., vii + 93 leaves.

'Notes in aid of a "Public Lecture" on Hindu Medicine to the Royal Society of Medicine in London, as proposed by Sir William Osler, Bart., September 1913.' Draft and notes, together with correspondence on the subject of the proposed lecture and a letter from Mrs. Hoernle presenting the MS. 9 leaves are blank. (ff. 92–3) Cutting from the N. Y. Med. Jrnl., xcvi, 13 July, 1912, on 'The Curiosities of Hindu Medicine' by Baba Premanand Bharāti.

107
NB6

107.

Notes

in aid of a "Public Lecture" on Hindu Medicine
to the Royal Society of Medicine
in London.

as proposed by Sir W. Lisle Peler, Bart.
September 1913.

To be thrown away. Bynomans H.C.

Draft

8. Northmoor Road 23. Aug. 1913

Dear Sir William Osler — ~~you~~ the Roy. Soc. of Med. has been good enough to send me the Proceedings of their Meeting on May 28th. It has been with an amused surprise that I have read the first article printed there, professing to be a short Review of the Hist. of Ancient Hindu Med. by Dr C. Mukha. Its first section on 'Ancient Civilization' is itself 'ancient' with a vengeance. For it is professedly founded on the views of Professor Heeren and Count Björnstjerna. The former first published his ~~his~~ account of ancient India in 1813, and ~~it was publ.~~ an English transl. was published in 1833. ~~The Count's~~ An English Transl. of the Count's views was published in 1844. Both are in the Bodleian Library, ~~but possibly Dr Mukha has read them~~. Of the wonderful advances ~~of Indian Archaeology~~ discoveries in India in the intervening period, — nearly

This letter, as re-copied and sent by H., W. O. has inserted in no. 106.
W. W. F.

at 'Atreya taught' is the
y work on Hindu Medicine,
of his pupils
all' (p. 181)

Draft Reply on reverse 30. Aug. 1913

P.T.O.

P.T.O.

TELEGRAMS: CULAG, LOCHINVER.

Culag Hotel,
Lochinver, N.B.

25th Aug 1913

Dear Hoernle

I blushed all through the reading of the paper. The man was evidently a faker. How the deuce he ever got in I do not know. I knew nothing of it until I saw the notice in the card. I had intended calling your attention to the paper. Will you not allow me to have your letter printed in the next vol. of Transactions? please do. It will do good — And will you not give us next winter a public lecture on Hindu Medicine at the Society? Thank you so much.

Yours sincerely
Wm Osler

---

ociety
an Medi-
after-
Club,
corner

Draft Reply:

6 Northmoor Rd. 28 Aug. 1913

Dear Sir William Osler — I have no objection to my letter, withdrawing Dr. Mackie's ~~article~~ paper, being printed in the next vol. of the Transactions; but if you decide to print, I should like to see a proof to ensure correctness, and to receive a few "offprints" for friends.

I appreciate the honour of being asked to give a "public oration"; on Hindu Medicine but I feel somewhat diffident about attempting a lecture on a subject which I have not yet mastered in all its details. But I am quite willing to consider your proposal, and to prepare to bring together such facts as I know and as may interest the Society. But please do not publish, just yet, as an absolute promise, and let me take my time. Sir Aurel Stein's MS. discoveries in Central Asia, which have been placed in my hands for development and publication, presage a very considerable portion of my time. The first volume, or rather double volume is now being printed (by the Clarendon Press with a subvention from the Government Grant).

I am, yours sincerely

RHR

Draft

8. Northmoor Road 23. Aug. 1913

Dear Sir William Osler — ~~from~~ the Roy. Soc. of Med. has been good enough

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This letter, as re-copied
and sent by H., W. O. has
inserted in no. 106.
W. W. F.

(2 Sept 1913)

9th,

13, NORHAM GARDENS,
OXFORD.

Dear Hoernle,

I am very glad you give your consent. I will read an abst. of your remarks at the next meeting & ask that the criticism appear in the Proceedings. You shall have proof & slips. About the lecture — take your time but do let us have it.

Yours ever
Wm Osler

From the Regius Professor of Medicine, Oxford.

27th May, 1913.

Dear Hoernlé,

Tomorrow afternoon at 5 o'clock at the Royal Society of Medicine a Mr. Chowry Muthu will read a paper on Indian Medicine: could you not come up and discuss it, and then afterwards, at 7.30, dine with me at the Royal Automobile Club, Pall Mall? The Royal Society of Medicine is at the corner of Wimpole and Henrietta Streets.

Sincerely yours,

Wm Osler

Draft Reply

Dear Sir William Osler —

Dr Mukhu's ~~article~~ in the Proceedings paper, having
you decide to print, I sh
and to receive a few offprints

I appreciate the honour
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13, Norham Gardens,
Oxford.

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Dear Sir William

I thank you cordially for your most kind and tempting proposal; but I am afraid I am not in a position to accept it. I have not been very well lately, and am on the point of starting for the Engadine; and require all the intervening time to arrange for Press-work during my absence. I am editing Manuscript Remnants of Sir Aurel Stein in the Clarendon Press

Yours sincerely

Draft

This letter, as re-copied and sent by H., W.O. has inserted in no. 106.
W.W.F.

8. Northmoor Road 23. Aug. 1913

Dear Sir William Osler — ~~your~~ the Roy. Soc. of Med. has been good enough to send me the Proceedings of their Meeting on May 28th. It has been with an amused surprise that I have read the first article printed there, professing to be a "Short Review of the Hist. of Ancient Hindu Med." by Dr C. Muthu. Its first section on "Ancient Civilization" is itself "ancient" with a vengeance. For it is professedly founded on the views of Professor Heeren and Count Björnstjerna. The former first published ~~his~~ his account of ancient India in 1813, and ~~it was publ.~~ an English transl. was published in 1833. ~~The Count's~~ An English Transl. of the Count's views was published in 1844. Both are in the Bodleian Library, ~~and possibly Dr. Muthu has read them~~. Of the wonderful ~~advances of Indian Archaeology~~ discoveries in India in the intervening period, — nearly a century — ~~and~~ which have revolutionized our knowledge of ancient India, and the writings thereon, Dr. Muthu appears to ~~have~~ be totally unconscious. He still believes that "Dionysius" (i.e. the god Bacchus) was "an Indian king" (p. 178), who reigned "nearly 7000 B.C."; that "Egypt was one of the oldest colonies of ancient India" (p. 179); that the Hindus possessed written books of religion before 2800 B.C." (p. 180); that "Sanskrit is the mother of all European languages" (p. 180) etc. etc., and he asks ~~you~~ us to believe this at the present day!

In his second section on "Hindu Medicine" he is equally wide of the truth. For example (p. 181) he tells us that "Atreya wrote several works, of which the Atreya Samhita stands foremost" (p. 181), and again that "Atreya Samhita is the oldest existing work on Hindu Medicine, written by Atreya for the use of his pupils and containing 46500 verses in all" (p. 181). ~~But Atreya [illegible]~~ Now Atreya did not write at all, but his six pupils did, among them was Agnivesa; the latter's work has survived and is now known as the Charaka Samhita (not Atreya Samhita) which is the oldest Hindu medical work, but contains nothing like 46500 verses. Again (p. 182) he ~~tells~~ says, "dissection and vivisection were practised". ~~He~~ But vivisection is unknown to Indian anatomy, whether ancient or ~~[illegible]~~ late; and dissection, though known to Susruta, is not known to Atreya (teste Charaka-Samhita). ~~In face of~~ Such misstatements ~~one is~~ make one doubt whether Dr. Muthu has any first-hand knowledge of the ancient Indian medical documents whether in original or translation.

His third section on the "Different Branches of Hindu Medicine" ~~is~~ exhibits a curiously unscientific treatment of problems ~~[illegible]~~. ~~There is hardly any modern well known discovery which is not claimed for the Medicine of ancient India. From a modern M. D. [illegible]~~

expects the unintelligent method by which many well-known modern ~~discoveries~~ are claimed for Hindu antiquity. To quote one ~~glaring~~ instance among many others, the doctor says (p. 188) "The circulation of the blood is distinctly understood by Charaka, Susruta, Dalvana, Bhavamisra etc." (see also l. 20 on p. 187) .... "to them the circulation of the chyle was really identical with the circulation of the blood, as they argued that chyle or rasa is blood without the colouring ingredient". This argument is simply based on ~~a con~~ an ~~fusion of ideas~~ ~~[illegible]~~ misunderstanding of the term "circulation". It is taken as identical with "spreading" ~~"current"~~. What Susruta (Sutra XIV, 1. 2nd) ~~the ancient medical authors~~ ~~teach~~ ~~is only that the "chyle runs or flows moves down into the hrdaya driven by the general marut; there matured and coloured by the bile it acquires its red colour turns into blood; the blood diffused~~ staying in ~~through the whole body is the best support of life."~~

teaches is that the seat of chyle (rasa) is in the upper or epigastric region of the abdomen (hrdaya); from there chyle spreads through the whole body by means of 24 ducts (dhamani) of which ten run upwards, ten downwards, and 4 transversely." ~~He further~~ ~~Throughout the idea of the movement of it~~ He adds that when the chyle in its course of spreading, reaches the liver and the spleen, it acquires ~~its~~ a red colour through the action upon it of the bile-humour, which as a reddening agent has its seat in those two organs. ~~It is obvious from this description that in Susruta's view, chyle equally with blood~~ ~~His description of the exact relation of chyle to blood (or reddened chyle) with respect to its spreading through the body~~, is not very clear, but ~~one point~~ It is obvious from this description of ~~blood~~ (as reddened chyle) that Susruta imagined its spread through the body to take place not in the form of "~~circulation~~" a circuit of the body, i.e., ~~starting from a point~~ moving ~~round~~ in a circle and returning to the same place, ~~such~~ but ~~in the form~~ the similar to that of irrigation of a field by water which runs from a central source through a ~~series~~ net of canals through the whole field. The two ideas are totally different. Moreover Susruta makes no mention of the heart as the central organ of "circulation"; ~~for~~ his hrdaya, as the ancient commentators Dallana and Bhanu well expressly declare, does not refer to the "heart" ordinarily so called, but to the whole epigastric region of the abdomen, (which they say is the seat of ojas or vital power)

move round & return to the same place

I. 1 – 138
2 – 34
3 – 28
4 – 85
5 – 102
6 – 50
7 – 70
8 – 36 x
9 – 26
10 – 15 x
11 – 74 x
12 – 20 x x
13 – 97
14 – 71 x
15 – 33 x
16 – 39
17 – 117
18 – 45 x
19 – 4

1 page has 13 verses
931 " have 931
13
2793
931
12103

65
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66
161

1 page prose ~~represents~~ holds 26 verses

65/201/3 161/308/2
185 322
16

465
13
1395
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6045

2/931/465 in verse
465 in prose
465 × 13 = 6045
465 × 26 = 12090
28135

Śārngadhara-saṁhitā I 6 67

rasas-tu hṛdayaṁ yāti samāna-mārut-eritaḥ
rañjitaḥ pācitas-tatra pittenāyāti raktatām |
raktaṁ sarva-śarīra-sthaṁ jīvasy=ādhāram uttamam ||

=

Suśruta ~~[illegible]~~ Sūtra XIV, 1 4th

tasya ca (rasasya) hṛdayaṁ sthānaṁ, sa hṛdayāt caturviṁśati-dhamanīr anupraviśya, ūrdhvagā daśa, daśa ca adhogāminyaḥ, catasraḥ tiryaggāḥ, kṛtsnaṁ śarīram ahar-ahas tarpayati vardhayati dhārayati yāpayati jīvayati ca adṛṣṭa-hetukena karmaṇā ||

"The seat of the chyle is hrdaya. From the hrdaya, having entered severally the 24 dhamani (10 ~~going~~ upwards, 10 downwards and 4 transverse) nourishes the whole body day by day, increases it, preserves it, supports it and vitalizes it by its invisible action.

Rañjitās tejasā tv āpaḥ śarīra-sthena dehinām |
avyāpannāḥ prasannena raktam ity abhidhīyate ||

This fluid (āpas = rasa) which has not got colour, being ~~redd~~ coloured by the pleasant heat (tejas) abiding in the body of men, is called blood.

sa khalu āpyo raso yakṛt-plīhānau prāpya rāgam upaiti

"This liquid chyle, on reaching the liver and spleen, acquires its (red) colour.

N.B. red underlines are from Dr. [illegible]

1.

Draft of Lecture

i, The subject of Ancient Indian Medicine is the

x. See Cor. p. 300 l. 23. p. 340 l. 14

vii ult.

Pariveṇa,
13 St. Margaret's Road,
Oxford, 25th Nov. 1918.

iii

~~There is~~ another point ~~which~~ should be noted. There is nothing original in the article. ~~Practically~~ as to its 3rd section the whole of it is abstracted from Sir Bhagavat Sinh Jee's "Short History of Aryan Medical Science" (London 1896), ~~and the rest is largely based on the obsolete speculations of [illegible] and Count Björnstjerna~~. There need be no objection to this ~~feature~~ procedure, if the author of the article had acknowledged his indebtedness. But he not once mentions ~~his~~ that book as his source, ~~though the~~ either by name, or only by quotation marks, though ~~he copies~~ occasionally he gives ~~quotes~~ long passages from it verbatim (~~examples~~). He even follows that book so carelessly ~~slavishly that he goes so~~ as to transcribe ~~even~~ its (probably inadvertent) errors, e.g. the name Nindananjana on p. 181 (from Sir B. S. Jee, p. 29) which should be Añjana nidāna. Occasionally he adds errors of his own, as when he adds vivisection to dissection (p. 182) where Sir Bh. S. Jee ~~only~~ and rightly mentions only dissection (p. 179). ~~[illegible] he makes his source say [illegible]~~.

~~On p. 189 he~~ Thus In one place (p. 189) he quotes a remark of Dr. Hirschberg, as if it were the result of his own reading. But the whole passage in which that remark occurs and the name of its author is ~~lifted, almost transcribed~~ from Sir B. Singhjee's book (pp. 178, 185). Another passage lifted bodily ~~from that book~~ is the instance of cleverness in brain surgery, related on p. 190 (Sir B. S. Jee's p. 197)

I fear ~~am afraid~~ the ~~publication~~ admission of an article of this character into the Proceedings (conveying, as I suppose it does, some sort of imprimatur) of the Royal Soc. of Med. is likely ~~cannot~~ but to damage ~~advance~~ the credit of that Society ~~[illegible]~~. The only thorough remedy, to cancel the article, and reprint the Proceedings without it, is probably ~~not~~ no longer practicable. In any case, it seems advisable that the future articles of this class should be submitted to Oriental and Medical experts before they are printed in the Proceedings of the Society; in fact I should say before they are admitted to be read to the Society (as is the practice with other Society, e.g. the Royal Asiatic Society).

I am, yours obediently
RH

[illegible] in this manner, Yours very truly
M de Z. Wickremasinghe

I. 1 - 138
2 - 34
3 - 28
4 - 85
5 - 102
6 - 50
7 - 70
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9 - 26
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move round & return to the same place

expose the unintelligent method by which ~~many~~ well-known modern ~~discoveries~~ are claimed for Hindu antiquity. To quote one ~~glaring~~ instance, among many others, the doctor says (p. 188) "The circulation of the blood is distinctly understood by Charaka, Sushruta, Dalhana, Bhavamishra etc." (see also l. 20 on p. 187) .... "to them the circulation of the chyle was really identical with the circulation of the blood, as they argued that chyle or rasa is blood without the colouring ingredient". This argument is simply based on ~~a con~~ an ~~fusion of ideas~~ ~~[illegible]~~ misunderstanding of the term "circulation". It is taken as identical with "spreading current". What ~~the ancient medical authors~~ Sushruta (Sutra XIV, l. 2 ff) ~~really teach~~ is only that the "chyle ~~runs or flows moves down into the~~ hṛdaya

[illegible]

prāpya rāgam upaiti

"This liquid chyle, on reaching the liver and spleen, attains its (red) colour.

N.B. red underlines are from Dr. Habib

1.

Draft of Lecture

1. The subject of Ancient Indian Medicine is the

* See Cor. p.300 l. 23 . p 345 l. 14

vii ult.

1918?

8. Northmoor Rd

Nov. 26.

Dear Sir William

I send you the Ms. for the proposed Lecture on Ancient Indian Medicine, but the notes seem to me to be so fragmentary, (simply the conscientious spade-work which was always the preliminary to anything my husband lectured on and published) that I am afraid, you will have to answer my query To be thrown away? in

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Parivena,
13 St. Margaret's Road,
Oxford, 25th Nov. 1918.

forthcoming lecture on
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to take up your valuable time in this manner; Yours very truly

M. de Z. Wickremasinghe

I. 1 - 138
2 - 34
3 - 28
4 - 85
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6 - 50
7 - 70
8 - 36 ×
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move round & return to the same place

sa khalvāpyo raso yakṛt-plīhānau prāpya rāgam upaiti

[a] This liquid chyle, on reaching the liver and spleen, acquires its (red) colour.

---

the affirmative. It seems a great pity, but the fact is, that so much work was thrust on my husband as the expert on a number of Indian subjects, that he was several times obliged to put aside half-finished studies etc. & never found time to go back to them.

I have also found a large bundle of papers, notes and studies on Eye-diseases in Ancient Indian Medicine, but for the present I will not trouble you with it, it was to be the "second" volume,

N.B. red underlines are from Dr. Blakeley 1.

Draft of Lecture

1. The subject of Ancient Indian Medicine is the *. See Car. p 300 l. 23, p 340 l. 14

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vii ult.

Parivena,
13 St. Margaret's Road,
Oxford, 25th Nov. 1918.

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Mudaz. Wickremasinghe

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Osteology.

Yours sincerely
Sophie Hoernlé

'Who's Who 1919'

Augustus Frederic Rudolf Hoernle
b. 1841.
W.W.7.

Hoernle died, Nov. 1918

I. 1 - 138
2 - 34
3 - 28
4 - 85
5 - 102
6 - 50
7 - 70
8 - 36 x
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expose the unintelligent method by which many well-known modern discoveries are claimed for Hindu antiquity. To quote one ~~glaring~~ instance among many others, the doctor says (p. 188) "The circulation of the blood is distinctly understood by Charaka, Susruta, Dalvana, Bhavamisra etc." (see also l. 20 on p. 187) .... "to them the circulation of the chyle was really identical with the circulation of the blood, as they argued that chyle or rasa is blood without the colouring ingredient". This argument is simply based on an ~~[illegible]~~ ~~fusion of ideas~~ ~~[illegible]~~ misunderstanding of the term "circulation"[2]. It is taken as identical with "spreading current"[3]. What Susruta (Sutra XIV, l. 2 sq. ~~the ancient medical authors~~

move round & return to the same place

sa khalu āpyo raso yakṛt-plīhānau prāpya rāgam upaiti

[a] This liquid chyle, on reaching the liver and spleen, acquires its (red) colour.

N.B. red underlinings are from Dr Osler

Draft of Lecture

1. The subject of Ancient Indian Medicine is to...

vii ult.

Parivena,
13 St.Margaret's Road,
Oxford, 25th Nov. 1918.

Dear Sir William Osler,

In connection with the forthcoming lecture on the story of the circulation of the Blood, it may perhaps be of interest to you to know that a Sinhalese medical work of the 14th century A.D. entitled Yogaratnākara, has a chapter on the circulation of the vital principle of the blood. You will find a description of the book in my Catalogue of the Sinhalese Manuscripts in the British Museum, pp.55-58. What this vital principle is, I regret to say, I do not know, but there is a belief still prevailing among Sinhalese 'medicine-men' that it would be the death of one to take a purgative whenever the rasa (the vital principle) is somewhere in the region of the abdomen!!

The ancient Indian surgeon, Susruta (circa 500 B.C.) in his chapter on the description of the blood, speaks of the rasa as follows:-

The five varieties of food derived from the five elements .....when taken in moderation and thoroughly digested, produce a fine substance imbued with energy and fire. This is called rasa. The heart is the seat of the rasa. From the heart it proceeds through 24 arteries namely, 10 ascending, 10 descending and 4 transverse to all parts of the body. By some unseen cause or destiny, this rasa continually satiates, increases, nourishes and supports the body and keeps it alive. The motion of this rasa throughout the body is inferred from the processes of decline, increase and diseased condition of the different portions of the body.....As this rasa is a circulating fluid, and as it softens, vitalises, supports and nourishes the body, it should be known to possess the cooling property. This watery fluid no doubt assumes a red colour in the liver and spleen, that is, it is converted into blood in these organs. The rasa of living beings is coloured red by healthy bile. This coloured fluid is called blood.....The verbal root ras means 'to go'. Rasa is so named because it moves or circulates continually. The period in which thi rasa completes its circuit is fixed at 18090 kalās. This rasa pervades the entire system by a very fine process which is analogous to the diffusion of heat, sound and water through material objects.

= 40 hrs, 12 min.
a kalā = about 8 seconds.

With apologies for venturing to take up your valuable time in this manner, Yours very truly
Medis. Wickramasinghe

I. 1 - 138
2 - 34
3 - 28
4 - 85
5 - 102
6 - 50
7 - 70

expose the unintelligent method by which many well-known modern doctors are claiming for Hindu antiquity. To quote one glaring instance among many others, the doctor says (p. 188) "The circulation of the blood is distinctly understood by Charaka, Susruta, Dalvana, Bhavamishra etc." (see

such chyle, on reaching the liver and spleen, acquires its (red) colour.

N.B. red underlines are from Dr. [illegible]

1.

Draft of Lecture

(1) The subject of Ancient Indian Medicine is the whole man (puruṣa)*. Its object is to effect a sound mind in a sound body. The practicant of it is not merely a physician, but also a psychiatric. Accordingly in the ancient textbook of Caraka* man is defined as built up of six primary elements (dhātu): earth, fire, water, air, ether, and the conscious soul (cetanā)*; and their concern is not only the health of man's body made up of the first mentioned five gross elements (mahābhūta) but also the health of his soul, both in its moral and social aspects, for which they contain much shrewd and sound advice. With the latter side of Indian medical science the present lecture will not be concerned. It will deal only with what it teaches about the human body, and more especially about the way in which it is built up and kept going as a living machine.

Th

*. See Car., p. 309, l. 23; p. 340, l. 14

He who practises it

See Car., p. 141²⁶ all objects (dravya) are pāñcabhautika.

*. There are, however, diff. views, see p. 309, l. 23–~~p. 310~~ 26. (Tr. 653)

(p. 309, l. 23.24 (Tr. 653); p. 57, l. 20 (Tr. 121)

*. See Car. p. 332, ll. 8–10 (Tr. 737) 21; p. 340, ll. 12–16 (Tr. 765 ~~[illegible]~~); p. 344, ll. 24.25 (Tr. 782)

See also p. 314, l. 9.10, where when cetana leaves, it is said to have gone to pañcatva.

*. Or ātmā; the organ (indriya) of ātmā is manas or sattva, p. 4, ll. 15.19

Hence man is said also to be a [illegible].

(3) As materials, in the structure of the body, these gross elements, are said, in a general way, to be distributed as follows:*

(a) Earth in everything that is ~~solid~~ large (sthūla), ~~firm~~ not moving (see Comm. Vi. 5⁷, l. 7) (sthira), ~~compact~~ solid (mūrtimat)○, heavy (guru), rough (khara) and hard (kaṭhina); thus in nails, bones, teeth, flesh, skin, faeces, hair, beard, down, tendons.

(b) Water is in: liquid (drava), fluid (sara), mild (manda), greasy (snigdha), soft (mṛdu), slimy (picchila); hence in chyle (rasa) blood, adeps (vasā), phlegm, bile, urine, sweat.

(c) Fire is in: bile, warmth (uṣmā), rosy complexion (bhā)

(d) Air, in the breath and the driving and moving forces.

(e) Ether, in every cavity, all channels (srotas) great or small.

*. See Car., ~~p.~~ p. 353, l. 23–p. 354, l. 6 (Tr. 810); also p. 340, l. 14.15 (Tr. 765)

○ see p. 244, l. 12 (Tr. 462), p. 259, l. 15 (Tr. 502)

see p. 66, l. 22 ff. (Tr. 157) 31

see p. 66, l. 16 ff. (Tr. 136) 31 32

see p. 64, l. 2.3, and 25.26 (Tr. 133) 30

(2) The human body is built up of the five gross element (mahābhūta): earth, fire, water, air, and ether.* Ether is taken to be that impalpable, and indefinable element which fills all apparently empty spaces, that is, all spaces which are not filled by any of the four other elements. For want of a better term it is called ākāśa, or Kha, i.e. open space; but this is not to be understood as empty space; for Indian science knows of no vacuum. For the same reason, it has become usual to render ākāśa by the somewhat inappropriate term "ether."

* See Car. p. 310, l. 19.

(3) The supply of this material of gross elements for the growth and repair of the body-machine is provided by the process of nutrition. This process includes two stages: the introduction into the body of the gross elements in the form of food (anna, rasa)*, and the digestion ~~within the body~~ of the food, within the body, for the purpose of disengaging from it those parts, from which the gross elements can be absorbed and assimilated by the body.°

* See Car. p. 183, l. 17. (Tr. 391), p. 188, l. 18 (Tr. 401); p. 184, l. 24. 25 (Tr. 394)

° See p. 655, l. 3. 4. and 7. 8 (and 23 ff.) (Tr. 1441); also p. 347, ll. 10. 11. (Tr. 794)

(4) All natural objects (dravya) consist of the same five gross elements;* and any of these objects may be used food, provided it is suitable for the process of assimilation°. In this ~~question~~ connection the question is discussed what is, or is not, suitable food; but these two questions need not detain us on the present occasion, as well as the further question which conditions alone are suitable for such food to be taken°;

* See Car., p. 141, l. 26 (Tr. 299, 7)

° See Car., p. 185, l. 1 ff. (Tr. 394), p. 187, l. 7-10 (Tr. 398), p. 188, l. 17. 18 (Tr. 401); p. 655, l. 21. 22.

° See Car., ch. XXV-XXVII, p. 133 ff., 150 ff., 155 ff.; also V, p. 25, VI, p. 34, XXIV, p. 126, l. 17 ff. See also p. 188, l. 19. 18, p. 243, l. 5 (Tr. 489), p. 245, l. 7 (Tr. 464)

11 13

6, The organ for the introduction and digestion of food is the alimentary canal with its various divisions, as well the various parts of the body through which these divisions pass.

It has two main divisions: 1, the gullet (oesophagus) for the defalcination of food, in the chest (hṛdaya), and 2, the intestinal canal (mahāsrotas) begins for its digestion (in the abdomen (kukṣi)), beginning with the stomach and ending with the anus. Caraka has no general name for the whole canal; the lower second part (in the abdomen (kukṣi)) he calls mahāsrotas, the upper part, in the chest, he calls prāṇavaha, the channel of prāṇa, because prāṇa is force which propels the food downwards; but as prāṇa also expells breath, prāṇavaha also designates the trachea; hence with Caraka, prāṇavaha denotes both the ~~trachea~~ windpipe and the gullet, both of which are in the chest (hṛdaya). Hence, in a way, prāṇavaha may be taken, as the general name for the Alimentary canal.

Sitala Sinha.

see Car. p. 269, l. 7. 8 from bottom (Tr. 504), also p. 244 l. 11 (Tr. 462)

(7) The introduction of food is done through the mouth, where it is prepared to form chyme (as well as), and through the throat and gullet (kloma) which pass it down into the stomach (āmâśaya). Food (anna) may be either such as may be eaten (aśita) or such as may be drunk (pāna); and in the former case, it must either be chewed (khādita) with the teeth, or it may be licked (līḍha) with the tongue.*

(āhāra-rasa, food-juice) Car., p. 184, l. 12
Cor anna-rasa-poṣaka, Comm. 83, l. 11.

it is driven down (prāṇa, p. 655, l. 9. 10

See Car. p. 184, l. 4/25; (p. 187, l. 26); p. 325, l. 2; p. 134, l. 5; p. 247, l. 9. 14.

* See Car. p. 247, l. 14 (Tr. 470), etc. p. 184, l. 4 (Tr. 391)

(8) The digestion of food (pāka, vipāka) takes place in two stages: a preliminary (āma) in the stomach (āmâśaya), and a thorough (pakva) in the intestines (pakvâśaya)*. The term for "digestion" is "cooking" (pāka or vipāka), because the food is said to be cooked (or vipacyate) (pacyate) by the external digestive fire (agni), which has its place in the stomach (abdomen, i.e.) and intestines.

* See Car. p. 247, l. 14-16 (Tr. 470)

(9) The ultimate result of the total process of digestion is to convert the five gross elements, which, some or all, exist in food, into such "extract" form as to be ready for absorption and assimilation by the body. This result is attained by keeping the digestive fire, by means of the "internal breeze" (samāna) at a fivefold strength, adapted to the extraction, respectively, of each of the five gross elements.

See Car., p. 347, ll. 10.11 (Tr. 794); also p. 655, l. 23 - p. 656, l. 3 (vv. 11-13) (Tr. 1412)

(10) Digestion itself consists in passing the food through a consecutive series of transformations, (pariṇāma), in the course of each of which a separation takes place of a useful from a waste part. The former is called prasāda, grace, or sāra, extract; the latter is named Kiṭṭa, refuse, or mala, dirt. The former is that portion of the food which is serviceable, either directly or indirectly, for the upbuilding of the tissues of the body. The latter is that which is not serviceable for that purpose, and accordingly is eliminated from the body.

See Car., p. 184, ll. 9.10 (Tr. 392); p. 243, l. 6 (Tr. 459, note); p. 347, l. 12 (Tr. 794); p. 655, ll. 13.14 (v. 6, Tr. 1411), p. 657, l. 12 (Tr. 1413).

The Hena digestion called āhāra-pariṇāma, p. 688, l. 26.

see p. 19

Both parts, as products of the bodily organism, are called dhātu, support, or constituent element, of the body; but more usually, as well as more properly, the term dhātu is reserved to signify the seven useful (prasāda) tissue-building products of digestion (see infra, §§11,..) Moreover, those waste products which are not necessarily mischievous, may also be reckoned, from that point of view, among the useful products prasāda, or useful products (see Car., p. 347, l. 17). See §12.

so much of it as is mischievous (bādha-kara, Car., p. 347, l. 13)

See e.g. Car., p. 184, l. 14 (Tr. 393), p. 261, l. 13 (Tr. 586), p. 347, l. 12 (Tr. p. 794), but the reading dhātavas is uncertain)

See Car. p. 227, (l. 4) (Tr. 984) where it is said that in certain abnormal circumstances, no other dhātu being formed, man lives on the dhātus urine and faeces.

(1) The useful part includes two kinds of products of the digestive process: the nutrient (poṣaka-āhara-rasa, Comm. p. 484, l. 14) and the (dissolvent or) lubricant (kleda or sneha, Car. p. 347, l. 4) ~~(upalepa-mātra-kāraka, Comm. p. 140, l. 16)~~. The former ~~are called~~ the seven main products of the process, which serve to nourish (poṣaṇa) the tissues of the body, and thus to keep in repair, as it were, the machinery of the body. They number seven materials, into which food in its passage through the digestive organs is transformed in regular consecutive order. (see § ...)

See Car. p. 184, 12 ff. (Tr. 392); p. 656, l. 14 ff. (Tr. 1413); Comm. p. 482-484

The others are the bye-products of the process, and include, first, the material which serves to nourish the circulatory tubes (śarīra-bandha, Car. p. 184, l. 13; Comm. p. 482, l. 5.6) of the body (see § ...); secondly, the internally secreted ~~glairy~~ fluids (picchā (Car. p. 184, l. 13) which serve as ~~lubricants (upalepa-mātra-kāraka, Comm. p. 140, l. 16) of the body machine~~, such as ~~and mucous~~ serous (lasikā), ~~mucous~~ salivary (kleda), and sebaceous (sneha) fluids, and thirdly, such externally secreted ~~glairy~~ fluids (picchā), as milk (stanya) ~~and~~ menstrual blood (ārttava) which serve the purpose of generating and ~~fostering~~ nourishing ~~existent~~ life (Car., p. 656, l. 6; p. 184, l. 13; Comm. p. 482, l. 6).

and sweat (upasveda, p. 349, l. 1.2)

kleda, p. 215, l. 8 is a synonym of asṛṅ, p. 499, l. 16

śarīra-bandha, Car. p. 184, l. 13; Comm. p. 482, l. 5.6)

bandha means bore, lumen of a tube, see Comm. to. p. 483, l. 4.5. Shows it is said that the tubes have not all the same bore (samasiro bandhaḥ)

dissolvent digestives (kleda and sneha, Car. p. 347, l. 4 (p. 656, l. 10.) Comm. p. 139, l. 12 See) or

1 Lasikā is defined as the fluid between skin and flesh, Car. p. 353, l. 15 (Tr. 808); it is one of the products liable to be injured (dūṣya) by the humours, p. 215, l. 9 (Tr. 961); p. 220, l. 12 (Tr. 971); p. 569, l. 11, it is one of the causes of hasti-meha, p. 218, l. 11 (Tr. 967); it is liable to be dried up by bitter things, p. 147, l. 8, (Tr. 313) distinguished from kaphaja, p. 600, l. 5.

2 The two terms kleda and sneha appears to be not infrequently used in a general way to denote any internal or external secretions, ~~excepting bodily~~ Thus kleda, Car. p. 145, l. 24; p. 146, l. 21, p. 147, l. 8 (Tr. 310-3); p. 147, l. 15 and p. 215, l. 8.19; (śarīra-kleda, Tr. 313, 961); p. 347, l. 4 (abdominal juices, Tr. 792). Sneha (p. 347, l. 4 (Tr. 793) Comm. p. 139, l. 12 See also) signifies both synovial and sebaceous, oily fluids, but it also signifies a kind of waste oily fluid (see § 12), cf. Car. p. 600, l. 12 (Tr. 1701).

3 The menstrual blood comes in here merely as the vehicle of the ova, the female factor in generation. See Note ☥ to § 19.

(12) The waste part, also, includes two kinds of products of the digestive process, viz, such ~~matters~~ as remain attached to, or enclosed within, the body; and such as are expelled from the body.

See Car., p. 184, ll. 10. 11 (Tr. 392); p. 319, l. 4 (Tr. 684); p. 347, ll. 12–17 (Tr. 794); Comm. Sū. p. 481, Śār. p. 140. p. 259, l. 4–6

To the former class belong such excrescences (upadeha, lit. bye-body), as hair (keśa), beard (śmaśru), down (loma), nails (nakha) etc., as well as the two internal secretions (pṛthag-janma), ~~[illegible]~~ bile (pitta) and phlegm[1] (kapha, śleṣma).

~~[1] Phlegm is identified with ojas, lymph in Car. p. 100, l. 13. See infra, §~~

To the latter class belong[1] all excrementitious, or as th

s

4

Sneha – Kleda – Lasikā.

= śleṣmā. = pitta. which is accha, drava.

Nothing in Caraka re their relation to each other, and their origin in the body.

Not mentioned in list of components of body in p. 184, l. 9 ff., either as dhātu or as mala

They are not directly nutrient elements; hence may be counted as mala; but they are indirectly ancillary to nutrition, thus sneha as lubricant; and both sneha and kleda as gastric (kleda = saliva) juices (p. 347, l. 4. Tr. 794). hence may be counted as dhātu [in their natural condition; but when too abundant, they may become superfluous (mala) and are ejected.

Kleda synonym of ambu, watery fluid; generated by sour taste (p. 145, l. 24); destroyed by pungent (p. 146, l. 21; p. 147, l. 8)

sneha synonym of śleṣma (p. 105, l. 18) and of ojas (p. 143, l. 11); and ojas = śleṣma (p. 100, l. 13. 14).

Origin of śleṣma in stomach (p. 655, l. . .); hence origin of sneha, if sneha = śleṣma.

Origin of pitta in stomach (p. 655, l. . . .); hence origin of kleda; if kleda = pitta.

If sneha = śleṣma and kleda = pitta, they would circulate with rasa = ojas, and with blood (= rakta-rasa) through body; hence both sneha and kleda found everywhere in body.

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prasāda

Comm.,

products, so far as they serve to assist the nutritive process, e.g., saliva (kleda) in preparing the food for digestion, are included in the prasāda, or useful part, see Car. p. 347, l. 4 and 17, and Comm. Śār., p. 141, ll. 2. 3. (see § 11) This is especially so in the case of bile and phlegm. As integral parts of the body, they are, in their natural and normal condition (prakṛta), ~~they are~~ advantageous to the body; it is only when they disordered (vikṛta), and in a highly sublimated and volatilized form, that they become a source of mischief (doṣa, mala) in the system or machinery of the body. See p. 100, l. 11 (bile), l. 13 (phlegm) Comm. Sū. 266, l. 11 [Tr. p. 200], see infra § 25. humours

~~Also, the two internal secretions, bile and phlegm, in certain conditions, to be explained hereafter (see § . . .), when they are highly sublimated and volatilized, become the main source of mischief (doṣa) in the systems, or machinery of the body.~~

(11, The useful part includes two kinds of products of the digestive process: the nutrient (poṣaka-āhāra-rasa, Comm. p. 484, l. 14) and the lubricant (dissolvent or) (kleda or sneha, Car. p. 347, l. 4) ~~(upaleṣaṇa-mātra-āhāra)~~ (Comm. p. 140, l. 16). The former ~~consist of~~ are the seven main products of the process, ~~and~~ which serve to nourish (poṣaṇa) the tissues of the body, and thus to keep in repair as well the machinery of the body. They number seven into which food in its passage through the d organs is transformed in regular consecut (see § ...)

See Sar. p. 184, 12 ff. (Tr. 392); p. 656, l. 4 ff. (Tr. 1413), Comm. p. 482-484

The others are the bye-products o and include, first, the material which serves the circulatory tubes of the body (see § ...); s the internally secreted ~~glairy~~ fluids (picch 184, l. 13) which serve as lubricants (upaleṣa- kāraka, Comm. p. 140, l. 16) ~~of the body machine~~, and mucous serous (lāsikā), ~~mucous~~ saliva (kleda), and sebaceou fluids, and thirdly, such externally secreted fluids (picchā), as milk (stanya) ~~and~~ menst (ārttava) which serve the purpose of genera nourishing and fostering ~~nutrient~~ life (Car., p. 656, l. 6; p. 18 p. 482, l. 6).

and sweat (upasveda, p. 349, l. 1. 2)

kleda, p. 215, l. 8 is a synonym of asṛṅ, p. 499, l. 16

3) The menstrual blood comes in here merely as the vehicle of the ova, the female factor in generation. See Note † to § 19.

(12) The waste part, also, includes two kinds of products of the digestive process, viz, such matters as remain attached to, or enclosed within, the body, and such as are expelled from the body.

See Car., p. 184, ll. 10. 11 (Tr. 392); p. 347, ll. 12-17 (Tr. 794); Comm. Sū. p. 487; Śar. p. 140; p. 314, l. 4 (Tr. 604); p. 259, l. 4-6

To the former class belong such excrescences (upadeha, lit. bye-body), as hair (Keśa), beard (śmaśru), down (loma), nails (nakha), etc., as well as the two internal secretions (pṛthag-janma), bile (pitta) and phlegm[1] (Kapha, śleṣma).

[1] Phlegm is identified with ojas, lymph in Car. p. 100, l. 13. See infra, §

To the latter class belong[1] all excrementitious, or as they are called "over-cooked" (paripakva) matters, such as urine (mūtra), faeces (purīṣa), gas (vāta), and sweat (sveda), which are expelled through the urethra (upastha), anus (guda), and cutaneous pores (loma-kūpa); [2], all external, or outwardly discharging (bahir-mukha*) secretions of the ear (karṇa), eye (akṣi), nose (nāsikā), and mouth (asya), and cutaneous pores (loma-kūpa), and genital organs (prajanana), viz. earwax (karṇa-mala), tears (akṣi-mala), nasal mucous (siṅghāṇa, Car., p. 48, l. 1), saliva (kleda), the oily fluid from the sebaceous glands of the skin, the milky fluid from the prostate gland, and the menstrual blood (śoṇita[2]), and the pus (pūya) from abscesses.

p. 310, l. 17

or pāyu (p. 310, l. 17)

[1] hol

* See on this term p. 369, l. 5 (Tr. 852)

It should be added, however, that some of these products, so far as they serve to assist the nutritive process, e.g., saliva (kleda) in preparing the food for digestion, are included in the prasāda, or useful part, see Car. p. 347, l. 4 and 17, and Comm. Śar., p. 141, ll. 2. 3. (See § 11) This is especially so in the case of bile and phlegm. As integral parts of the body, they are, in their natural and normal condition (prakṛta), advantageous to the body; it is only when they are disordered (vikṛta), and in a highly sublimated and volatilized form, that they become a source of mischief (doṣa, mala) in the system or machinery of the body.

[2] That is not the ovum (ārtava) which is a prasāda (see § 11), but its vehicle, the waste blood. See Comm., Śar., p. 140, l. 9.

Also, the two internal secretions, bile and phlegm, in certain conditions, to be explained hereafter (see § ...), when they are highly sublimated and volatilized, become the main source of mischief (doṣa) in the system, or machinery of the body.

Comm. Sū. 266, l. 18

See p. 100, l. 11 (bile), l. 13 (phlegm) / Tr. p. 200, see infra § 25 humours

~~11~~ 13 In the process of digestion the following factors are at work: a, the digestive fire (uṣma, agni) which cooks;*

b, the abdominal breeze (samāna) which blows the fire

c, two kinds of abdominal juices which dissolve (kleda = śaithilya) and soften (sneha = mārdava) the food

d, time (kāla) which is needed for each transformation;

e, suitability (saṃyoga) of the food offered for digestion.

See Car. p. 347, l. 5-9 (Tr. 792, Comm. 138) p. 100, l. 11 (Tr. 199) -9/ . p. 655, l. 10 (Tr. 1411)

* Hence called paktā, cook; p. 35, l. 6 (Tr. 67)

Samāna in digestion
vyāna only later, in distribution

The function of the abdominal breeze is to keep up the digestive fire at a sevenfold strength, ~~being~~ adapted respectively to each of the seven transformations, and maintained for the respectively needful time.

See Car. 656, l. 2.3. (Tr. 1412.1413. note)

~~14 12, The process of digestion considered as a series of the transformations is completed within six days; but it is a never-ending process, comparable to the revolving of a wheel (cakravat), because of the constant supply from the food which is taken of food and chyle. The latter is not reckoned as a transformation, but as mere separation of the nutrient and waste part portions of food-juice, or chyme. There are therefore only six real transformations of food into body-tissues, and each of them takes a complete day (aho-rātra) to be effected.~~

~~See Car. p. 657, l. 15. (Tr. p. 1414) Note: The text says that this is the theory of some (kecid), but states no other theory. The reference is to the theory of Suśruta, according to whom them the duration of a transformation, and of the total series, one month is 3015 Kalā (Comm., and to that of Hārīta, according to whom the total series takes 7 days (Comm. p. 483, 17 - p. 484, l. 2). [This shows that it is an observation of Dṛḍhabala, not Caraka].~~

1, chyle to blood
2, blood to flesh
3, flesh to fat
4, fat to bone
5, bone to marrow
6, marrow to semen

~~The time which these series process of seven transformations, beginning with takes to complete its course is six days. Chyle and ends with semen. In this count of course the determination of this period of 6 days, of course, the first transformation that is reckoning begins with the transformation of chyle into blood, so that there are six transformations ending with that of marrow into semen; each transf. taking of 24 hours a full day (ahorātra, lit. day and night) to be effected.~~

(14) The series of transformations (pariṇāma) which the food-juice, or chyme (āhāra-rasa or anna-rasa), undergoes in the course of digestion, after reaching the stomach (āmāśaya) and while passing through the intestines (pakvāśaya), consists of the following, seven particulars, in the successive order in which they occur:—1, chyle (rasa), 2, blood (rakta or rudhira), 3, flesh (māṁsa), 4, fat (medas), 5, bone (asthi), 6, marrow (majjan), 7, semen (śukra).

See Car. p. 184, l. 12 (Fr. 392); p. 656, ll. 2-7 (Fr. 1412-3)

These ~~are the~~ seven are the body-building tissues, or dhātu (sustainer) as they are called technically. Each of them contains a useful or nutrient, as well as a waste part. And each of them has its own duct (dhamanī), or rather set of ducts, by means of which it is distributed over the whole body to serve for the up-growth and repair of its tissues.

See Car. p. 184, l. 14 (Fr. 393); p. 261, l. 13 (Fr. 506); p. 347, l. 12 (Fr. 794). There, however, the reading dhātavaḥ is uncertain.

See Car., p. 249, ll. 15-16 (Fr. 470); p. 193, l. 5 (Fr. 412).

1 The term dhātu is sometimes applied to either of them separately. Thus in Car., p. 227, ll. 4 ff. (Fr. 984) this explained that in certain morbid circumstances, no other dhātu being formed, the patient lives on his dhātus urine and faeces. For another list of 7 dhātus, see p. 569, l. 12 (Fr. 1585)

(15) Now there are two different theories, both handed down in the oldest existing commentary of Cakrapāṇidatta, ~~[illegible] both expressed in Caraka's Textbook~~, regarding the manner in which the several body-building tissues (dhātu), each coursing in its own channels, originate and spread over the body, and at the same time divide into their nutrient and waste parts. Some compare the manner (āhāra-gati, Car. p. 191, l. 3) to a system of channels irrigating a field (kedārī-kulyā), others to a line of pigeons feeding on a threshing floor (khale-kapota).

See Comm., Sū., p. 482, l. 10 – p. 484, l. 10.

In Caraka's textbook itself, neither of the two theories is expressly taught. It contains only the vague statement that the body-building tissues (dhātu) feed on themselves (dhātv-āhāra), which admits of being interpreted in support of either theory 1 See Car. p. 184, l. 8

(15) According to both theories, from the food-juice or chyme (āhāra-rasa), as it passes through the intestinal canal, its nutrient portion (prasāda) separates off, in the form of chyle (rasa), into a duct (dhamanī) of its own, in which it runs, in ~~distrib~~ smaller distributing ducts, over the whole body nourishing the various body tissues. On the other hand ~~the~~ its waste portion (kiṭṭa or mala) passes on in the intestinal canal, and is finally expelled from the body through the urinal and anal openings.*

See Car., p. 656, l. 4 – p. 657, l. 11. (Tr. 14.13 ff)
Comm. p. 482, l. 17 – 484, l. 10

According to one theory, from the stream of chyle (rasa) as it runs along in its duct, a certain portion separates off into another duct, in which its nutrient part (prasāda) turns into blood (2nd transformation), while its waste part (mala) is eliminated and forms phlegm (śleṣma, kapha). From the stream of blood, running in its own duct, again a certain portion separates off into a third duct, in which its nutrient part turns into flesh material (māṁsa, 3d transformation), while its waste part is eliminated in the form of bile (pitta). From the stream of flesh material, running in its own duct, once more a certain portion separates off into a fourth duct, in which its nutrient part turns into fat material (medas, 4th transformation), while its waste part is eliminated in the form of ~~the~~ flatus or wind in the bowels* ~~from cavities (kha)~~ of [illegible], ear. prostate gland or urine? ~~faeces~~

~~[illegible]~~, Exactly in the same way, the process goes on, yielding in the 5th transformation, the nutrient bone material (asthi), and the waste external secretions, such as sweat (sveda); ~~and~~ in the 6th transformation, the nutrient marrow material (majjan), and the waste excrescenses, or "bye-bodies", hair, nails, etc.; and finally, in the 7th transformation, ~~there~~ the nutrient material ~~is no waste, the whole stream of marrow material turning into~~ semen (śukra), and the waste external secretion (oneha) What is it?

The other theory differs only in one point. The several

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*See infra, §16 on the mala.

*See Car. p. 657, l. 10 (Tr. 14.13. Kha-mala, refuse of the abdominal cavity), Comm. Sū. p. 481, l. 20.22.

streams, and their ducts, do not separate off consecutively from one another; but the first stream, or duct, of chyle is the direct parent, or source, from which all the other six streams, or ducts, separate off at different, consecutive points.*

These theories necessarily implicate that, in order to be capable to run in ducts and circulate over the whole body, the seven body building tissues (dhātus), at the time of their production by the process of digestion, are in a liquid form (drava-rūpa), though ultimately some of them, such as flesh and bone, assume a solid form. In the textbook of Caraka, this point is incidentally mentioned.[1] But the Commentator Cakrapāṇidatta it is ~~expressly stated with reference~~ to the bone tissue (asthi, Vim. p.160, l.4), ~~and so~~ of course understood that his remark applies equally to any other solid tissue of the body. The terms flesh (māṁsa), bone (asthi), etc., therefore, signify in this connection those solid ~~to~~ tissue themselves as well as their original liquid material.

* The Comm. p.482, l.9-10, mentions briefly a third theory. Some (~~others~~ Kecid) hold that the whole of chyle turns into blood, the whole of blood into flesh-material; and so forth; just as the whole of milk turns into curds. But this does not account for the origin of the mala, nor for the constant presence of each tissue in the body. It is, in fact, so inconsistent with facts, that apparently for that reason, it is so briefly dismissed by the commentator, who deals ~~serious~~ only with the two other theories as serious rivals.

1. See Car. p.475, l.14 (F. 1151)

(17) The time which this series of seven transformations, beginning with chyle and ending with semen, takes to complete its course, is six days; but it is a never-ending process of transformations, comparable to the revolutions of a wheel (cakra-vat) because there is a constant supply of chyle from the food which is regularly taken.

In the determination of the period of six days, of course the reckoning commences with the transformation of chyle into blood, so that there are six transformations, ending with that of marrow into semen; each transformation taking a full day of 24 hours (aho-rātra, lit day and night) to be effected.

See Car. p. 657, l. 15 (Tr. 1414)

× round of movement

1 The text says that this is the theory of "some" (Keci't), without explaining who they are, nor offering any alternative theory. The reference, however, probably is to the theory who Suśruta, who holds that each transformation is completed in 3015 kalā, and the whole series in one month; and to that of Hārīta, according to whom the whole series takes 7 days to complete. See Comm., Su., p. 483, l. 17 - p. 484, l. 2.

(18) Each of the body-building tissues (dhātu) into which the food-juice, or chyme, is transformed, courses in its own duct, which runs through everyone of the ten parts into which, for physiological or nutritional purposes, the body is divided, that is to say, throughout the whole body.

In doing so each duct forms its own network[1] (jāla, p. 92, l. 23) of innumerable ramifications[2], which have a longer or smaller bore in relation to their distance from the base.[3] Moreover, from the fact that each of the body-building tissues exists in the body in a definite ratio (māna) to the other tissues, regulated by the age and size of the body[4], it follows that each of the vascular networks has a particular bore, or width of lumen (ayana-mukha), adapted to the particular tissue which it conducts.[5]

But whatever the bore of a particular network of tubes may be, the tubes themselves, under normal conditions, are always so thoroughly charged with their liquid contents that they are inflated, i.e. their containing walls stretched, to their fullest extent.[6] Hence these tubes, or ducts, are called dhamanī, "inflated", being a name connected with the word dhmāna, blowing, inflating.[7] It is a general name for the ducts of any of the body-building tissues, not only for those of chyle (rasa) to which it is more prominently applied.[8] For the food which is transformed into the seven body-building tissue (dhātu) is said to be conveyed through the whole body by means of the dhamanī[9]; and since it is applied expressly to the blood bearing (śoṇita-vaha) ducts.[10]

Two other names of the ducts which imply that they are filled with liquid tissue not in a state of repose (stirā)[11], but in motion (drava)[11a] are srotas and sirā, both meaning "stream" or "current", derived respectively from sravaṇa and saraṇa, running or flowing.[12] Of these,

[1] See Car. p. 189, l. 13 (Tr. 402), p. 192, l. 19 (Tr. 411), p. 259, l. 18 (Tr. 504), cf. p. 61, l. 15 (Tr. 127), p. 100, l. 5 (Tr. 199)
Also Car. p. 247, l. 16. (Tr. 470), p. 259, l. 19. 20 (Tr. 502, sarva-śarīratva, sarva-śarīratva); p. 193, l. 5 (Tr. 412, ojas); p. 657, ll. 17. 18 (Tr. 1415, rasa); Comm. Vim., p. 58, l. 5. 13.

(the branches (śākhā) of a tree (koṣṭha)), Comm. Sū. p. 493, l. 1. 12, p. 187, l. 24, p. 188, l. 2, p. 193, l. 14 (Tr. 369, 400)

[1] See Car. p. 92, l. 23 (Tr. 186, śirā-jāla). Hence compared to

[2] See Car. p. 259, l. 23 (Tr. 503)

and as network by which to gather the body (śarīra) see p. 184, l. 13, Comm. śirā, p. 482, l. 11 see also

[3] See Comm. Sū., p. 483, ll. 4. 5.
Su Car. p. 831, l. 18 (Tr. 1914, sthūlāṇu-srotas)

[4] See Car., p. 184, l. 15. 16 (Tr. 393)

[5] See Car., p. 184, l. 23. 24 (Tr. 394); (p. 831, l. 18 (Tr. 1914); Comm. Sū., p. 484, l. 21 – p. 485, l. 3; p. 486, l. 3-5.

[6] See Car., p. 184, l. 23. 24 (Tr. 394); Comm. Sū., p. 486, l. 2-4; p. 511, l. 1 (purāṇa etc.)

[7] See Car., p. 193, l. 5. 13. (Tr. 413); Comm. Sū., p. 509, l. 14. 18; p. 511, l. 1-3.

[8] See Car., p. 260, l. 18; Comm. Vim., p. 62, l. 1. 2, and Sū., p. 484, l. 13. 14.

[9] See Car. p. 247, ll. 12-16.

[10] See Car. p. 226, l. 11. 12 (Tr. 982). See also Comm. Sū. 32, l. 5. 6. p. 269, l. 25. 26 (Tr. 530)

[11] See Comm. Vim., p. 57, l. 7

[11a] See Car. 630, l. 13 (Tr. 1308)

[12] See Car., p. 193, l. 13 (Tr. 413); Comm. Vim., p. 58, l. 8. 9.

however, the term srotas has a wider meaning, signifying not only small ducts, but large canals, such as the alimentary, or as it is called the "grand canal" (mahā-srotas)[13] And there is a further ~~for the small ducts~~ of wider import name, nāḍī, which means simply a "tube", and which is used, for example of the navel chord which carries to the embryo, its food (rasa).[14] Occasionally, however, even dhamanī is used in a wider sense, as when it is applied to the urethra (vasti-dhamanī or Tube of the bladder);[15] and so also sirā, as when it is apparently applied to the navel chord[16]. And this fact may explain the distinction made between dhamanī and sirā in the list of organs which are said to be derived from the father's side.[17] It may be due to one or other of the two terms having been taken in the wider or narrower sense.

[13] See Car. p. 260, l. 8

[14] Car. p. 349, l. 2-5 (Fr. 799); p. 369, l. 19 (Fr. 854), p. 370 l. 1 (Fr. 855)
cf. Car., p. 334, l. 12 (Fr. 744)

[15] See Car. p. 145, l. 18 (Fr. 310)

[16] See Car. p. 349, l. 5 (Fr. 799)

[17] See Car., p. 326, l. 16

(19) Taking now a summary view of the body, it may be described as made up of two constituent parts: 1, firm organs (mūrtimad-bhāva) and 2, the substances contained and moving within those organs.[2] Other medical authorities (eke maharṣayaḥ) prefer describing the body simply as the sum total of conduits (srotas); but, of course, in their case, the term "conduit" must be understood to include the substances which the conduct.[3]

The firm organs are all in the form of hollow vessels, ~~or "holders" (vaha) as they are called~~, which hold and conduct those moving substances. Hence they are called holders (vaha, vāhin) or Conduits (srotas). On account of their ramifications, they are, strictly speaking, so many that they cannot be numbered.[4] But they may conveniently be divided into the following thirteen sets, or systems, each with an indication of its beginning (mūla) and ending or spreading.[5]

1, Breeze holders (prāṇa-vaha). Air is found in the body only in the form of what is called prāṇa, that is, breeze, or air in motion. As such it enters the body through the chest (hṛdaya), and escapes from the body through the great intestinal canal (mahāsrotas).[6] See §22.

2, Water holders (udaka-vaha). These start ~~at the palate~~ in the cavity of the mouth, which is bounded by the palate (tālu), lips (oṣṭha), tongue (jihvā) and throat (kaṇṭha), and they end in ~~the cavity which is~~ the organ called Kloma*, for which there is no English term, but which ~~and~~ is the cavity behind the throat, or fauces, including the pharynx and larynx, and probably also the windpipe and gullet.[7]

[2] Car. p. 259, l. 15.

[3] Car. p. 259 f. 16-17. This passage (sarve bhāvā hi, etc) has been severally misunderstood. The word kṣaya does not mean "destruction" but "receptacle", as stated expressly on p. 29, l. 12, where Jīv. has the conjectural reading ālaya, adopted from the eds of B. and H. Sen Gupta, p. 308. Jīv. ed. 1877 has correctly kṣaya, so has ed. Abināśa Chandra, p. 318, and Harinath Vidyaratna, p. 61. The passage means: "all that is in man takes the form of srotas, or else does not develop into receptacles (kṣaya).

[4] See Car., p. 259, l. 19-22. (Tr. 502-3) Comm. Vim. p. 57-8

[5] See Car. p. 259, l. 23-25

[6] See Car. p. 260, l. 2. Cf. p. 688, l. 3.

[6] See Car. p. 260, l. 7. Tr. 504.

* Kloma does not mean either bladder (Tr. 504) or lungs (Skr. Dg), but the place at the back of the throat, where, as the text indicates (p. 260, l. 12) the sensation of thirst makes itself felt through dryness in the tongue, palate, lips, throat (fauces) and the cavity behind the throat. The comm. (Vim. p. 60, l.) rightly explain it as the "place of thirst, situated in the chest" (hṛdaya-sthā-pipāsā-sthāne). See also Car. p. 99, l. 1.

[7] See Car., p. 260, l. 11 cf. Car. p. 718, l. 5-12 (Tr. 718)

3, The food holders (anna-vaha). These begin with the stomach (āmāśaya), and end with thoracic duct on the left side (vāma pārśva) of the body.[8]

4, Chyle holders (rasa-vaha). These start from the heart (hṛdaya), and end by ramifying in small ducts (dhamanī) over all ~~the~~ parts of the body.[9]

5, Blood holders (śoṇita-vaha). These begin with the liver (yakṛt), and as well as with the spleen (plīha)[10]

6, Flesh holders (māṁsa-vaha). These begin with the strands of the muscles (snāyu)[*], and end with the skin (tvac).[11]

7. Fat holders (medo-vaha). These concentrate in begin with the pads in which the two kidneys (vṛkkau) are embedded, and the great coverlet or omentum (vapā-vāhana)[*] which hangs down in front of the intestines.[12]

8, Bone holders (asthi-vaha). These start with the deposits of fat and end in concentrate in the bones of the pelvic girdle (jaghana).[13]

9, Marrow holders (majja-vaha). These start in the bones, and concentrate in the long bones of the lower extremities (sakthayaḥ)[14]

10, Semen holders (śukra-vaha). These start with the two testes (vṛṣaṇau), and end with the penis (śepha).[15]

11, Urine holders (mūtra-vaha). These are the bladder (vastiḥ), and the two flanks ~~cord~~ (vaṅkṣaṇau) containing the kidneys and ureters.[16]

12, Faeces holders (purīṣa-vaha). These begin with the intestines and (pakvāśaya) and end with the rectum (sthālāntra) ~~guda~~ and anus (guda).[17]

13, Sweat holders (sveda-vaha). These start from the fat (medas) and end in the pores of the skin (roma-kūpa)[18]

[8] See Car. p. 260, l. 14.

[9] See Car. p. 260, l. 17; p. 128, l. 7. Also p. 584, l. 15. 16 where hṛdaya is said to be the sthāna, not only of rasa, but of all dhātus and of ojas.

[10] See Car. 260, l. 17. 18; p. 128, l. 7. and also p. 475, l. 18. 19, Comm. Nid. p. 39, l. 3–5, also Car. p. 208, l. 2.

[*] See Car. p. 61, l. 17. 18 (Tr. 128) where snāyu are said to be attached to the joints (asthi-sandhi), and where the Comm. Sū. p. 186, l. 8, explains kaṇḍarā by sthūla-snāyu, ligaments.

[11] Car. p. 260, l. 19. 20

[12] Car. p. 260, l. 20, omitted inadvertently

[*] Comm. Vim., p. 60, l. 1. 2 says that vapāvāhana is a greasy pad (snigdha-varṭikā) in the abdomen (udara-sthā), popularly called taila-varṭikā, oily pad, and that Suśruta calls it kaṭi

[12] See Car. p. 260, l. 20, omitted

[13] See Car. p. 261, l. 7; (also p. 203, l. 12.) also p. 91, l. 21 (malāyana). p. 639, l. 23 (Tr. 1335 asvedāmba vaha); p. 715, l. 7 (Tr. 1574, sveda-mūtrāmbu-vaha); p. 504, l. 15.

[14] See Car. p. 260, l. 20. For sakthayaḥ, most MSS, and ed. Bhāṭ with Vidyāsāg read sandhayaḥ, which fits the tenour of the exposition less well.

[15] See Car. p. 260, l. 21.

[16] See Car. p. 260, l. 25. See also p. 215, l. 20 (Tr. 912) where the two terms are mentioned in their proper order (vaṅkṣaṇa-vasti-prabhava). also p. 218, l. 9 (mūtra-vasti), p. 215, l. 23, and p. 218, l. 11 (mūtrāśaya), p. 715, l. 7 (mūtrāmbu-vaha)

[17] See Car. p. 261, l. 3

(20) Using the foregoing list of vessels or "holders", as landmarks, we may follow the course of the metabolic process as conceived by Ancient Indian medicine. It comprises three stages: (1) taking in body-building material in the shape of food, (2) adapting and distributing it for particular purposes throughout the body, and (3) ejecting from the body such portions of it as prove to be useless; or briefly the stages of digestion, assimilation, and excretion.

See Diagram

The first mentioned system of "breeze holders" (prāṇa-vaha) concerns the preliminary question of what is the driving force in the metabolic process. This point will be explained in § 23.

The second and third systems of water and food holders are concerned with digestion in its two stages, salivary and gastric. The mouth and the back of the throat (kloma) hold the fluids (udaka), salivary and mucous, which serve to moisten and dissolve the solid food (anna) which is broken up and chewed in the mouth. The food, thus prepared, ~~is~~ passes through the gullet into the stomach to be converted into chyme. The latter is called āma, unripe, or partially digested; and hence the stomach is called āmâśaya, the receptacle of semi-digested food. The stomach, however, marks only the beginning of the digestive process. It is continued in the intestinal canal, where the nutrient part of food, called rasa, chyle, is separated from the refuse (kiṭṭa). That finished product rasa, chyle, is carried on the left side of the body (vāma-pārśva) upwards to the heart (hṛdaya). The reference, doubtless, here is to the thoracic, or great lymphatic duct, which runs up along the backbone, on the left side of the body, and empties above and close to the heart into the brachio-cephalic vein, and thence

into the heart itself.

The next seven systems, from the fourth to the tenth, are concerned with the details of the process of distribution and assimilation of the results of digestion. There is, first, the fourth system of chyle holders (rasa-vaha). These comprise the network of ducts (dhamanī), which starts from the heart, and ramifies ~~throughout the~~ through its ten branches into every part of the body. ~~ten parts regions into which the body, from the meta-bolic or physiological point of view, is divided.~~ When chyle, in the course of its distribution, reaches the liver (yakṛt), and farther on, the spleen (plihan), that much of it as flows into those two organs, is converted into blood, and henceforth, flowing on in its own separate network of blood-holding ducts, is distributed similarly over all ~~the~~ parts of the body. In the same (way) from chyle, as it runs on farther, or (according to which ~~one~~ of the two rival theories, §16, is adopted) from blood as it flows onward, a certain portion is diverted into a separate network of flesh-holding ducts, from which the strands of the muscles (snāyu) and ultimately the skin (tvac) are formed. Next, in a similar way, those ducts take their rise from which fat is deposited in the pads in which the two kidneys (vṛkkau) are embedded, and the great coverlet, or omentum (vapāvahana) (known as taila-vartikā) which hangs down as a protection in front of the bowels. From the fat-holding ducts, again, start those bone-holding ducts, which carry the material for forming the bones of the great pelvic girdle (śrōṇi) and the whole skeleton. Then come the ducts which deposit the marrow in the cavities of the ~~long thigh bones~~ long bones of the thighs (śakthi) and in the bones generally; and finally the ducts which collect the semen in the two testes and ejaculatory tubes.

The last three systems, from the eleventh to the

thirteenth are concerned with excretion of the waste products of digestion, the eleventh serves for gathering a portion of the liquid refuse (urine mūtra water and urea) in the two kidneys, thence by the ureters (vaṅkṣaṇau) ~~the~~ it is carried into the bladder (vasti). The twelfth serves to separate out the solid refuse (purīṣa) in the intestines (pakvāśaya), collect it in the rectum (sthūlāntra), and eject it as stools by the anus (guda). The thirteenth serves to collect the balance of liquid refuse (water) from the fatty parts of the body (medas), and eject it in the form of sweat (sveda) by the pores of the skin (romakūpa).

(21) From the preceding sketch of the metabolic theory of the Ancient medical writers of India, it does not seem difficult to gather what conception they had of the internal organization of the body. In their views, rasa, or chyle, i.e. the nutrient part of food, was disengaged from the waste part in the intestines, but its distribution over the body ~~commenced~~ started from the heart. It must, therefore, have previously been conveyed from the intestinal region to the heart. The path of this conveyance they appear to have placed in the left part (vāma-pārśva) of the body. They would seem, therefore, to have been aware of the existence of the thoracic duct which they must have conceived as the conduit of rasa, chyle, to the heart. Starting from the heart on its course of distribution, rasa first moved downwards to the liver and spleen. This obviously refers to the great vein, the venacava inferior, which starts downwards from the heart. This vein was taken to pass through the liver, and from the liver to send off a great branch, the portal vein, to the spleen. Those two organs were considered to be reservoirs of bile, one of whose functions is to impart to the chyle a reddish color. The venacava, on starting from the heart, is supposed to be filled with rasa, chyle, which on reaching the liver and spleen, is by the action of their bile, transformed into blood. From the venacava and portal vein the ducts start off which carry the material for building up the muscles and skin. In its further downwards course the great venacava sends off branches to the right and left to the two kidneys; from these branches start the ducts which deposit pads of fat which embed the two organs, as well as the great coverlet of the intestines. Going further down, there start off the great vein, the ducts which deposit bone material in the great pelvic girdle and elsewhere.

See chemical representation

That is to say, altered-blood chyle

From the bones start the marrow building ducts which go down into the long bones of the thighs, and elsewhere. Still further downwards, ~~here start off the vena cava the two~~ two branches which there branch off to both sides (from the vena cava) to the ducts which collect the semen in the testes.

This, of course, is not a correct view of the internal organization of the body, but it is interesting enough, considering the possibilities, at that early time, of dissection and examination of a dead body, in which the fluids did no longer move, and the arterial portion of the blood ducts was empty. The ancient Indian anatomists could recognize only the veins as blood-bearing ducts, and naturally conceived the stream, when alive, in the great vena cava to have gone in the opposite direction to what it actually goes; that is, to have flowed downwards from the heart, instead of upwards to the heart as it actually does. ~~The empty arteries they looked upon as the conduits of one of five "breezes" of the body (see S...) which had no motion of~~ In the circumstances they could not possibly recognize the circulation of the blood, and the heart, as the central forcing pump, so to speak, of the circulatory system, was quite unknown to them. In fact, the heart is never mentioned in intimate connection with the flowing blood. It is the liver and the spleen[1] which, in their view, are the organs where the blood originates, and the centres from which it is distributed over the body. There can be no doubt about this particular theorem, because it is repeated quite distinctly several times.[2] They knew that the blood moved; venesection, which was practised, proved that point. But the movement, in their view, was not circulatory, i.e., starting from and returning to the same place, it was a movement starting from a centre and

There is no evidence to show that the empty arteries had attracted their attention, and as a matter of fact the veins are the larger and more capacious, and hence the more striking and conspicuous ducts.

force pump See p. 385

[1] Through contact with the bile, which, resulting from digestion in the duodenum (Car. p. 655, l. 17/18), is collected in those two organs; — a theory which ~~Car. p. 655, l. 19 which~~ shows that the stream in the bile ducts was considered as flowing from the duodenum to the liver, but not in the reverse direction, as it actually does.

[2] See Car. p. 208, l. 2; p. 475, l. 19; Comm. Su., p. 186, l. 4. 5; Vim. p. 39, l. 4

spreading through a network of channels over the whole body. It can, therefore, be described as circulatory only in the sense in which we speak, e.g., of the circulation of a newspaper.

In trying to picture to ourselves the course of the blood vessels, as it appeared to the Ancient Indian anatomists, we must be careful to avoid reading what we now know to be the actual condition of things into their statements which are based on what alone they can have known with their very imperfect and limited means of examining the body; and especially to remember that what we now know to be ducts carrying venous, i.e. used up, blood, they considered to be ducts carrying nutrient blood from the heart to every part of the body. With this proviso, we may admit that the ancient Indian anatomists had conception of the course of the blood vessels, though incorrect in detail, was in its main features fairly correct. They understood one trunk channel to issue from the heart which divided into ten branches, five on either side of the body. That trunk channel is what we now call the vena cava. It was apparently not distinguished from the so-called pulmonary artery, which also carries venous blood. From it, in its upward course, there issued, (1), the two pulmonary branches, feeding the lungs, and (2), the two brachio-cephalic branches, feeding the neck, head, and arms. In its downward course, there issued, (3), the hepatic and portal branches, feeding the liver and spleen respectively; (4), the two renal branches, feeding the two kidneys, and, (5), the two spermatic branches, feeding the two testes, and the lower limbs. Thus we have ten large divisional channels which ramify over the whole body, and supply it with nutriment.

until it finally ended in the absorption of the nutrient blood in the muscles, bony, and other tissues of the body, which it served to sustain. The movement

(22) After having effected the sevenfold transformation of the food juice, the process of digestion ends with extracting from it its concentrated essence. To this quintessence of food the ancient Indian medical authorities give the name of ojas; but it is not easy to determine, what they exactly conceived it to be. Even the earliest commentators admit that that is a point "difficult to know" (durjñeya)[1]. What seems, however, to come out clearly is that they conceived it to be something essential physical or material, but at the same time something intimately connected with psychical phenomena. Ojas is said to be a substance possessing ten physical properties. It is described as being heavy (guru), cold (śīta), greasy (snigdha), sweet (madhura), soft (mṛdu), firm (sthira), slimy (picchila), tender (ślakṣṇa), dense (bahala), and ~~clear~~ pure or white (prasanna).[2] So far, ojas appears to have been identified with phlegm (mucus, śleṣman), which (see § 24) was considered one of the three most important elements in the economy of the body. For the properties of phlegm are described in practically identical terms, as heavy, cold, greasy, sweet, soft, firm, slimy, tender, dense, ~~clear~~ pure, moist and slow.[3] The addition of the two last properties makes no real difference; for in two other lists the number of the properties of phlegm are reduced to six and seven respectively;[4] while all three lists agree in including the five or six initial ones which occur also in the list of properties of ojas. In any case, there are statements in which ojas is explicitly identified with phlegm.[5]

On the other hand the central locality of ojas is declared to be the heart (hṛdaya), which itself is said

[1] See Comm. Sū., p. 260, l. 2

[2] See Car., p. 584, l. 28 (Tr. 1672). Here the term ~~śvetā~~ "pure" for prasanna, or accha (as in p. 294, l. 15) is apparently meant to be synonymous with "white" śveta or śukla (as in p. 113, l. 18, or with "pure" śuddha, as in p. 96, l. 25, which the Comm. Sū. p. 260, l. 2 explains as "white" śukla.

[3] See Car. p. 294, l. 14. 15 (Tr. 594)

[4] See Car. p. 5, l. 14. 20 (Tr. 6); p. 113, l. 18 (Tr. 230).

[5] See Car. p. 100, l. 13. 14 (Tr. 200); p. 353, l. 21 (Tr. 809); Comm. Sū., p. 266, l. 14.

to be the source of all phenomena of thought and sensation[1], and from which ojas is said to course over the whole body[2]. Ojas is described as the vital force, or sustainer of life (jhārī), the presence of which in the body can be recognized by its showing itself responsive to touch, through any of the five senses ~~or~~, ~~—~~ by the expression of pain or pleasure[3]. In such statements, ojas clearly appears to be represented as the physical basis of consciousness and all its manifestations. They suggest that the ancient Indian medical writers had an inkling of the existence and the function of the nervous system. Though their means of examining the human body was extremely imperfect and limited, two very conspicuous points about the nerves, their white colour and their network of ramification over the whole body can hardly have escaped their notice, and in that case, in keeping with their whole system of analogy, they could not but conceive the nerves as being a stream of ~~a~~ strange tissue flowing in that network, similar to, but mysteriously differing from the seven other well-known body-building Tissues (dhātu)[3a]. There is a long passage of twelve verses, in the xxxth chapter of the Sūtra-sthāna of Caraka's Textbook, a veritable hymn in praise of ojas, which brings out strikingly the air of mystery with which that element was surrounded for the ancient Indian medical writers[4].

There is, however, also another system, the lymphatic with its network of ducts spreading

1 See Car. p.192, l. 21.22 (Tr.144); (p.193, l.2 (Tr.412)); p.352, l. 10 (Tr. 806); p.584, l. 15. 16.

2 See Car. p.193, l.5 (Tr. 412)

3 See Car. p.193, l.1 (Tr. 412); Comm. Sū. p. 508, bl ff. Re Touch including all senses, see Car. p.60, l.4 (Tr. 124), p. 310, l. 26 (Tr. 657); Comm. Sū. p. 181, l. 7 ff.

3a/ There are certain passages, e.g., Car. p. 65, l. 11. 6; p. 772, l. 15. 16, which have been thought (Tr. 1784, note) to suggest that air, in its vyāna form, acted as sensory and motor nerves. But those passages intend to say only that the vyāna-prāna is the power that propels ojas through its ducts, and it is ojas functions as nerve.

4 See Car. p. 192, l. 19 – p. 193, l. 17.

over the whole body, which may have been in the mind of those writers. For in a certain passage, ojas is described as a substance in the heart (hṛdaya), which is clear (śuddha, or as the commentators say white, śukla), and also slightly yellow and red (īṣat sapītaka rakta).[1] This description would suit lymph, which is a clear fluid, though in the lacteal ducts it appears milky white; and when coagulated, it has a slightly yellow colour. Another point which favours the identification of ojas with lymph, is that the network of ducts which is supposed to carry the stream of ojas through the whole body is apparently identified with the network of ducts which similarly conveys what is called rasa, or chyle, through the body. In this connection, it is to be remembered (see ante S. 21) that the thoracic duct of lymph appears to have been known to the ancient medical writers.

The case is further complicat by the fact that that, as already observed, ojas is sometimes identified with phlegm or the mucous fluid, and as such it has contradictory qualities ascribed to it. While, on the one hand, in the form of ojas the proper vital ojas, it acts as lubricant (cnehā), and invigorater (bala), it acts of the body machine,[3] it may on the other hand, as ordinary phlegm, become the cause of disease (e.g., diabetes)[3], and is even liable to be alienated (vikṣīṇa)[4], and vaporized (prakṣālayan)[5] into a mischievous humour and a general cause of disease.

The conclusion of the matter seems to be that the ancient Indian anatomists felt themselves in the presence of an element, the exact nature of which they had

[1] See Car. p. 96, l. 25. 26 (Tr. 193)

[1a] See also Car. p. 349, l. 1-3 (Tr. 799) where it is called apasneha, the surplus of lubricant, being that which is given away by the mother to her unborn child through the navel chord; Comm. Sār., p. 145, l. 9, nisyanda, what trickles away, percolates.

[2] Compare ojas Car. 193, l. 11 (Tr. 411) with phlegm p. 105, l. 18. 19. (Tr. 210).

[3] Madhumeha, Car. p. 218, l. 15. 16 (Tr. 968); p. 97, l. 9. 10 (Tr. 194) Comm. Su. p. 262, l. 1

[4] See Car. p. 100, l. 13

[5] See Car. 72, l. 25. prasāda

and are an eighth dhatu, Comm. Su. p. 484, l. 17

not the means of determining, but which they at least recognized to be of the utmost importance for the physical as well as the psychical side of the human body.[1] They describe it as the very basis of life (jīvita, prāṇa), without which life can neither come into being, nor continue to exist[2]. It is more than any of the seven ordinary body-building tissues (dhātu), being something in addition to them (upadhātu)[3] because it is essential not merely to the up-growth and nutrition of the body (poṣaṇa), but to the very existence of the body as a living and breathing organism (dhāraṇa, dhārin)[4]

It is the foremost element (para, pradhāna) element in the body[5], the quintessence (sāra), or energy (tejas), or the sumtotal (samudāya) of the whole food-juice in all its seven transformations[6]

Like any of the seven body-building tissues (dhātu), ojas (basic ducts, by means of which it) courses over the whole body[7]; but ~~until them it has a special channel or duct, but makes use of their ducts, and~~ they are enumerated in the list of ducts, given in the chapter of Caraka's Vimāna Sthāna, which is especially devoted to the description of the conduits (srotas) existing within the human body. In fact they are (as a rule) treated as if they were identical with the ducts which distribute chyle (rasa). Like them the ojas ducts are said to start from the heart (hṛdaya) and to ramify in a network

See Postscript

[1] The possibility, however, must not ~~lost~~ be lost sight of that the contradictions and confusions may be later interpolations, which (introduced carelessly) steer, possibly equally old, but inconsistent with Caraka's genuine theory of ojas being the "nervous fluid."

[2] See Car. p. 96, l. 26; p. 192, l. 25; p. 193, l. 7. 10. 11 (Tr. 193, 412); Comm. Sū., p. 260, l. 10; p. 508, l. 22.

[3] See Comm. Sū., p. 509, l. 1. 4.

[4] See Car., p. 193, l. 1. 7. 10. 11; Comm. Sū. p. 509, l. 1. 2, p. 510, l. 16-21; see also Car. p. 4, l. 7; Comm. Sū. p. 484, l. 16. 17; p. 507, l. 16 - p. 508, l. 1.

[5] See Car. p. 193, l. 2; p. 584, l. 16.

[6] See Comm. Sū. p. 210, l. 9; p. 260, l. 11. 12; p. 266, l. 18; p. 484, l. 16. 18. 19; p. 508, l. 25; p. 509, l. 4; p. 570, l. 11. Hence it is compared to honey: as honey is the quintessence of fruit and flower, so is ojas of all Dhātus of the body; Comm. Sū. p. 260, l. 13; p. 509, l. 6

[7] See Car. p. 193, l. 5

of ten branches over the whole body[1]; and ojas is said to be conveyed from the mother to the foetus in her womb through the chyle-ducts (rasa-vāhinī)[2] by way of the umbilical chord (amarā, nāḍī)[3]

As the vital principle of the body, ojas is the indispensable condition not only of the continuance of life, but also of its beginning. It is that agent which starts the life of the embryo in the mother's womb, and there first forms its heart (hṛdaya)[4], in order to ramify thence over its nascent body.[4] For, as of every other body-building tissue, ojas is the essence also of the seventh among them, viz. the semen (śukra) of the father[4a], and the menstrual blood (rajas, ārtava, śoṇita) of the mother.[5] The formation of the embryo, as a living organism, starts from the moment that the ojas of the father and mother, being in the form of semen (śukra-bhūta) of the former, and the menstrual blood of the latter, combine in the womb of the mother.[6] The ojas, in this case, as the essence (sāra, or śarīra-dhātv-ātma) of the parental generative elements receives the name bīja, seed[7]; and seeing that those elements derive (according to whichever of the two theories, ante §§ 15. 16, is adopted)

[1] Compare Car. p. 192, l. 19; p. 193, l. 3. 4 with Car. p. 260, l. 18; Comm. Sū., p. 508, l. 20. Hence erroneously obscurely arises, as in Car. p. 226, l. 4. 5 (Tr. 982) where "rasa in the heart" is explained in the Comm. Nid. 83, l. 15 as ojas, while others, with reference to Car. 96, l. 5. 6. are said to explain it as ordinary chyle.

[2] See Car. p. 335, l. 18. 19. (Tr. 749); p. 334, l. 12 (Tr. 744)

[3] See Car. p. 349, l. 3. 4. (Tr. 799).

[4] See Car. p. 348, l. 21-23 (Tr. 798). There is also a verse, missing in Jīv. ed. on p. 96 l. 26, but given in Comm. ed. p. 260, l. 3 (Tr. 193, note), which says that "ojas is the first to come into existence in the body of man". As the Comm. l.c., says, the verse is not well authenticated (nātiprasiddha).

[4a] See Car. p. 323, l. 9. 10 (Tr. 708). Indian Medicine places the female generative element in some intimate connection with the menstrual blood. It is its useful part (prasāda), while the blood itself is its waste part (mala). But there is no distinctive term for either part by itself. Ojas, of course, is the essence of the prasāda, of the ova in modern terminology.

[5] See Car. p. 332, l. 13 ff. (Tr. 738-9); also Car. p. 328, l. 18 (Tr. 724), p. 330, l. 21-26 (Tr. 733), p. 336, l. 13. 15 (Tr. 752)

[6] See Car. p. 332, l. 14, dual bījau, Car. 534, l. 2 (Tr. 1368), see also Comm. Śār., p. 67, l. 10. 11. The term bīja is often used inaccurately in the sense of śukra; cf. e. g. p. 322, l. 14, where the reception of bīja into the womb is spoken of; but always accurately śukra-śoṇita, never bīja-śoṇita.

[4a] Hence, sometimes, in a loose way, ojas is said to be a "kind of semen" (śukra-viśeṣa), Comm. Sū. p. 509, l. 3; and even more inappropriately, a "product of semen" (śukra-janya), and there an "eighth dhātu", Comm. Sū. p. 484, l. 17

either from chyle (rasa) or marrow (majjan, the sixth dhātu), the ducts of either of which ramify over the whole body, it follows that the seed (bīja) collects from every part [of the body] (angād angāt)[1] of the father and mother into their respective special receptacles, the testes (śukrāśaya)[2] and the womb (garbhāśaya, yoni); and when collected there, they are distinguished by their specific names śukra, semen, and śonita (ārtava, or rajas, or puṣpa), menstrual blood.

[1] See Car. p.332, l.15 (Tr.738, note)

[2] See Car. p.322, l.4.5 (Tr. 702)

Post script

The real truth probably is this: with Caraka, ojas appears to be the technical name of rasa as chyle-lymph, in distinction from rasa as chyme or food-juice (āhāra-rasa). The metabolic process, on which life depends is thus: food is taken in and broken up into food-juice (āhāra-rasa). Insofar like assimilable, food-juice is digested. The first (1st dhātu) result of digestion is the turning of food-juice into chyle-lymph (rasa or ojas). From this subsequently and gradually all other tissues are evolved, viz. 1, blood (2nd dhātu), 2, flesh (3rd dhātu) etc. Chyle (rasa=ojas) is the basis (sāra) of all the other tissues. It is prepared in the intestines, and then passed through the thoracic duct (vena-porta) into the heart, and thence distributed in 10 branches over the whole body. In the course of this distribution, as it passes from organ to organ (liver, spleen) it evolves blood and the other tissues.

It is the nutrient (prasāda) result of digestion, the non-nutrient (mala) result is phlegm. Hence both are similar in their physical properties. Ojas may thus come to be used in two senses: 1, properly as a synonym for rasa = chyle lymph, the nutrient result. 2, improperly as a synonym for kleṣma = phlegm, the non-nutrient result. The latter may assist the metabolic process as a lubricant (śleṣma, gastric juice), or its surplus is refuse to be ejected, or if not ejected, it may cause disease (mathnumeha), or if vaporized, it become a nitrobacterious humours

The first two results of digestion are the most important, because phlegm is the male of chyle, and bile is the male of blood. The cacao-bile is similar to that of phlegm. It is non-nutrient, but it may assist digestion (as a lubricant solvent, kleda), it colors chyle to become blood, but if vaporized, it is mischievous.

The non-nutrient counterparts of the other dhatus do not assist the metabolic process, but are excrementitious.

The nerves were not known to Caraka. Sushruta may have discovered the nervous network, and with him ojas may have become their name. This has to be investigated yet.

Note

Course of Nutrition

1, Mastication and Deglution

2, Semi digestion in stomach (āmāśaya) and small intestines (grahaṇī).

Result: Separation of semidigested nutrient food-juice (prasāda) from 1, kleṣma (phlegm) in stomach
2, bile (pitta) in duodenum } non-nutrient (mala or kitta)

No. 1 phlegm, apparently as lubricant sneha disperses through body

No. 2 bile passes by ducts to and collects in liver (yakṛt) and spleen (pliha)
to serve there to turn the steam of rasa when it comes hereafter, into blood. } prakṛta useful as lubricant and blood-maker, useless, as human vikṛta

No. 3 both phlegm and bile, though non-nutrient, are useful; but whatever and either, beyond usefulness are excreted, and as such are excrementitious mala.

3, Full digestion in large intestines (pakvāśaya) of the semi-digested nutrient rasa

Result: seperation of fully digested rasa (chyle-lymph) prasāda from faeces (viṭ) mala.

Here rasa (chyle lymph) passes through Thoracic duct (pārśva vāma) up into heart (hṛdaya)
viṭ (faeces) passes through anus (guda) out of body as excrementitious useless matter.

4, Absorption and Assimilation through body. 4/

I, Rasa (chyle-lymph) passes from heart, through large veins and its 10 branches.

II then it with gentle by percolation of vein into liver and spleen, rasa is reddened by bile and turns into blood (rakta), which goes on circulating. Rasa absorbs only so much of bile, as is necessary to redden it, the rest remains in liver and spleen as non-nutrient but useful mala.

III A portion of blood is absorbed into its own channels and forms flesh (prasāda), the redden the surplus passes back (śoṣa) into the large intestines, and vitiates the air, and passes out as gas.

IV, A portion of the flesh material forms fat (medas) prasāda, the redden superfluity passes out of the body, as sweat.

V. A portion of the fat material forms bone

VI and a portion of the bone material forms marrow

VII and a portion of the marrow material form semen 5/

5, In all these transformations there is rasa, which is the formation or essence of them; and the rasa in this capacity, as the basis of all, is called ojas; and hence ojas also spreads from the heart, through the great vene and its 10 branches.

There are several difficulties:

1, Urīṣa is not accounted for. It is said to be the mala of anna & the food juice, exactly as faeces (purīṣa-mūtra) It would seem therefore, that the large intestines were supposed to be connected with the kidneys. But there is no such connection. There is a connection by two branches of veins, possibly these are meant, but if so, urīṣa is not the direct mala of anna, like faeces, but is indirectly, obtained from direct food blood, and indirectly from liver, muscles, and the body generally, or chiefly from assimilated food.

2, If red rasa or blood is formed in liver and spleen, how does it get up into chest and head, as the great vein bifurcates into superior and inferior, before it reaches those two organs. It would seem that the exact position and course of the vena cava was not known, and the vena cava superior was supposed to be in some other spot, or the reddening, after being communicated to those two organs, was supposed to spread upward as well as downwards.

3, There are two other fluid substances which are not accounted for: kleda and lasikā. The latter is said to lie between skin and flesh, it is not among one of the nutrient dhātus, still it serves a useful purpose, and hence is called a dhātu. it would be a mala in that sense; like phlegm and bile, and it would have its source in flesh or fat etc, though this is nowhere mentioned.

4, As to kleda, it is also called ambu; it is therefore a watery fluid. It is mentioned in connection with mastication, as saliva; and with stomach, as gastric juice. it is not a nutrient element, though useful, it is a mala, but its source is nowhere indicated, though perhaps

[No, see Tr. p. 300, short mistake]

It is generated by sour (amla) taste p. 145, l. 24, but destroyed by pungent (Lasika), p. 146, l. 21, p. 147, l. 8. Sour (amla) also increases bile (pitta) p. 146, l. 3, p. 149, l. 10 and it contains earth and fire, p. 144, l. 23. Hence probably kleda arises with pitta?

See also p. 155, l. 23 "water kledayati"

it in the stomach, where, like phlegm, it is separated in digestion, and then dispersed throughout the body).

(5) Laeka (sebaceous fluid) is another element, the origin of which is nowhere indicated. It is mentioned in connection with digestion in the stomach (as a gastric juice). Also meha is one of the characteristics of phlegm, and the latter originates in the stomach. Possibly meha may be identified with phlegm, mucus. But meha is also supposed to form throughout body; so is ojas, and ojas is also called meha. Possibly, meha, as throughout body, is the same as ojas. And this may be the reason for saying that śleṣma phlegm is ojas, but that in one sense, a kind of ojas; or ojas a kind of phlegm, seeing that they both are meha or lubricants. Any how ojas as such cannot be identified with śleṣma, for the latter is a mala, non-nutrient, while ojas is essentially nutrient, being the essence of all nutrient elements.

(23) So for we have seen the food taking its passage through the body; itself moving forward step by step on the alimentary canal, and its nutrient parts being distributed through in the body tissues by the assimilatory ducts. In short, we have seen the body machine at work. The query now naturally arises what is the driving power that sets the machine to work? At the present day we ascribe it, in the main, to the peristaltic movements of the alimentary canal, and the rythmical movements of the heart; but to the ancient Indians these ductors were unknown; They knew the so-called force of gravity; but they never thought of it; for the obvious reason that liquids can be drunk up-hill, and the body building tissues (dhātus) on their ducts run upwards as well as downwards; so that gravity could not be the driving force. But they knew also another force in nature, the force of air in motion, that is, the force of the wind. Daily observation brought home to them the thousand and one ways, small and great, in which the power of wind manifested itself; it was simply the "Almighty" (bhagavān)[1]. It was, no doubt, the phenomenon of "breathing (prāṇa) which suggested to them that it was air in motion, or wind, which was the driving power and that sets going the machanism of the Body[1a]. The word prāṇa means "moving forward"; and it was for that reason selected to express air in motion, or wind, [illegible] regarded as the driving power in the body[*]. Entering by the mouth and chest, it blows through the alimentary canal (mahāsrotas)[2] as well as the assimilatory ducts (dhātu-gat or dhātu-vyūha)[2]; and propels food and its body building products[3a]. It thus acts as the force which drives the whole machinery (yantra-tantra) of the body[4], and effects all upward and downward movements (uccāvacā ceṣṭā)[5] within it, that is to say, it energizes breathing respiration

[1] See Car. p.65, l.14 - p.66, l.7 (Tr.134-6); p.772 l.4 (Tr.1704)

[1a] See Car. p.105, l.14.15.

[*] The term vāta, wind, is reserved for air (vāyu) in its aspect of air-humour; see § 24. with reference to the body, accordingly, air (vāyu) as the driving power is prāṇa; as a humour, it is vāta. But the two terms vāyu and vāta are not always kept distinct.

[2] See Car. p.260, l.2.7 (Tr. 503.4); p.228, l.23 (Tr.980)

[2] See Car. p.65, l.5.8 (Tr.134); p.105, l.14 (Tr. 210)

[3a] See Car. p.327, l.22 (prerana, dharana, Tr. 723); p.655, l.9 (Tr. 1411, prakarsati)

[4] See Car. p.65, l. 2-9. (Tr. 134); p.772, l.9 (Tr. 1704, vartayati)

[5] See Car. p.65, l.3 (Tr.134); p.100, l.15 (Tr.200)

ejaculation of semen, and parturition of the young[6]

~~of breath~~ and expiration[1], deglutition[2] and digestion of food[3], distribution of the body-building tissues[4], evacuation of excrementitious matter[5], and indirectly promotes the activities of the five senses, and of the mind or soul[8] (emotions of the limbs, the actions, the activities) because thus sustaining the life process[7], it. Moreover, by blowing through the body and cooling its internal heat it serves to keep down the sublimation of the ~~humor~~ noxious humours[9] (doṣa-saṃśoṣaṇa).

As performing these various functions, the internally blowing air (prāṇa) is distinguished by five special names[10]: namely

(1) as going into the body through the wind pipe and the gullet, that is, in its functions of ~~inspiration~~ breathing and deglutition[12], it is called prāṇa, the forward going breath.

(2) as blowing up the digestive fire in the stomach and intestines[13], for the purpose of digesting the food and separating the nutrient from the waste parts, it is called samāna[14], coming together, or concentrating, and its manifests its presence by rumbling noises (borborygmus)[15].

(3) as propelling the nutrient products of digestion, ~~and~~ or the several body-building tissues, along their respective networks of ducts throughout the body, as well as generating the movements of the limbs it is called vyāna, diffusing[16].

(4) as coming out of the body in speaking, singing, coughing, (vomiting) and the like activities, it is called udāna upward going[17].

(5) as expelling from the body the waste parts of digested food, as well as the constituents of procreation, it is called apāna, going downwards[18].

From the same point of view, the body is divided into ten areas (āyatana) on which the ~~ether~~ internally blowing wind (prāṇa) performs its functions various[19]. They

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[1] See Car., p. 105, l. 14 [3] See Car. p. 655, l. 9 (Fr. 1411)

[2] See Car., p. 65, l. 7; p. 347, l. 4

[4] See Car. p. 105, l. 14 (Fr. 210)

[5] See Car. p. 65, l. 7 (Fr. 134); p. 105, l. ~~14~~ 15. (Fr. 210)

[7] See Car. p. 65, l. 8. 9. [6] See Car. p. 65, l. 3 ~~4~~, p. 105, l. 15.

[8] See Car. p. 65, l. 4. 6; p. 772, l. 16 (Fr. 1784)

[9] See Car., p. 65, l. 6

Comm. Śār., p. 22, l. 9, takes prāṇāpāna to mean ucchvāsa-niḥśvāsau, inspiration and expiration,

[10] See Car. p. 65, l. 2. 3 (Fr. 134); p. 535, l. 3. 4 (Fr. 1371); p. 772, l. 7 (Fr. 1784); often indicated by naming only the first and last (prāṇāpāna), Car. p. 314, l. 1 (Fr. 669); p. 327, l. 21 (Fr. 723); p. 639, l. 5. 24 (Fr. 1334).

~~[11]~~ See Comm. Śār., p. 289, l. 7, where the orifices of the mouth, nose and ears are specially particularised.

[12] See Car. p. 655, l. 9 (Fr. 1411); cf. p. 699, l. 3 (Fr. 1500); p. 772, l. 9. 10. (Fr. 1784)

[13] See Car. p. 65, l. 7 (samāno 'gneḥ, Fr. 134); p. 655, l. 11 (Fr. 1418); cf. p. 772, l. 14. 15 (Fr. 1784), where sveda-doṣa-ambu-vaha refers to stomach and intestines; see MS. note in Fr. 1784.

[14] See Car. p. 655, l. 11 (Fr. 1411); also p. 347, l. 4. 7, where, however, it is simply called vāyu, though the Comm. Śār., p. 139, l. 5, has samāna.

[15] See Car., p. 85, l. 5 (samādhmāpana); p. 536, l. 6 (ādhmāna, Fr. 1373); p. 839, l. 25 (also ~~ma~~ ādhmāna, Fr. 1335)

[16] See Car. p. ~~535, l. 3~~ 657, l. 17 (Fr. 1415); p. 772, l. 15. 16 (Fr. 1784); p. 778, l. 14 (Fr. 1791)

[17] See Car. p. 699, l. 3. 4. 8 (Fr. 1500-1); cf. p. 65, l. 5. 6 (pravartako vāyuḥ, sparśa-śabdayoḥ prakṛtiḥ); cf. also p. 831, l. 22 (Fr. 1945); p. 772, l. 11. 12 (Fr. 1784); p. 328, l. 17. 18 (Fr. 261)

[18] See Car. 772, l. 17. 18. (Fr. 1784) ~~Car. p. 535, l. 3. 4 (Fr. 1371)~~; p. 65, l. 7. 8 (Kṣeptā bahir malānām, kartā garbhākṛtīnām). If abstracted, it may move upwards, Car. p. 535, l. 3. 4 (Fr. 1371)

[19] See Car. p. 189, l. 14. 15 (Fr. 402); p. 191, l. 4. 5; p. 352, l. 11. 12 (Fr. 806)

N.B. ad 3. The vyāna expels the sveda, because it receives the sveda-vaha srotaḥ-rasa-vaha, see p. 203, l. 12 (Fr. 932)

are as follows: -

1, Head (mūrdhan śiras) and 2, Throat (kaṇṭha), in which the forward and upward going airs (prāṇa, udāna) function.[1]

3, Stomach, and 4, Intestines (śaṅkhau, or nābhi and māṁsa), in which the concentrating air (samāna) functions.[2]

5, Heart (hṛdaya), 6, blood (rakta, śoṇita), and semen (śukra), 8, Ojas, in which the diffusing air (vyāna) functions.

9, Bladder (vasti) and 10, anus (guda), in which the expelling air (apāna) functions.

With regard to the tenth area, viz. anus and expelling air (apāna), it is to be observed that though air as the driving force which sets the body machine at work is not, of course, a waste product of that work, yet a certain portion of it as it performs its propelling function in the ducts which convey the muscle-forming tissue (māṁsa) becomes vitiated with the fetid waste of that tissue (māṁsa-mala) (Kha-mala), and ultimately gathering in the intestinal canal is expelled through the anus.[3]

The moving air within the body, being its driving force, is naturally identified with its life. As a machine is alive when it is in motion, but dead when it stops, so the body is alive when and while the metabolic process is in action. Hence prāṇa which sets and keeps that process in action is the basis of life, and is simply another word for life. And for any creature to possess it (prāṇin, prāṇa-bhṛt) is to be alive.[4] When a body dies, it goes to pieces, while it lives, its parts hold together; Hence prāṇa is called also the cohesive force (sandhāra-kara).[5]

For the proper working of the body machine, its moving force must be of the proper amount. If it is withdrawn, the body dies; if it is too weak, and more espe-

[1] For mūrdhan = śiras see Car. p. 61, l. 26, p. 742, l. 16, where marma-traya is explained as śiro-hṛd-vasti. By the "head", of course, the orifices in it, mouth, nose, ear, are meant.

[2] Car. p. 189, l. 13 has śaṅkhau, the two śaṅkha; but p. 352, l. 11 substitutes nābhi, navel, and māṁsa, flesh, muscle. Apparently the two śaṅkha are the two divisions of the abdomen above nābhi, and below nābhi, i.e. āmāśaya, stomach, and pakvāśaya, intestines; cf. p. 110, l. 9. Śaṅkha, in this sense, is not elsewhere authenticated, but it is analogous to its use for the temples and the forehead, and (according to the Amarakośa, III, 3[10]) it may signify any receptacle (nidhi). As to māṁsa, observe its use in the next clause.

[3] See Car. p. 657, l. 10 (Tr. 1413); Comm. Sū., p. 481, l. 17.

[4] See, e.g., Car., p. 100, l. 15 (Tr. 200); p. 126, l. 16 (Tr. 258); p. 155, l. 16. 17. (Tr. 329)

[5] See Car., p. 65, l. 5 (Tr. 134)

cially if it is too strong, the machine gets out of order, that is, diseases spring up.[1]

Finally, as to question how does it happen that air as the driving power comes to act on any particular body, the answer may be briefly stated as follows. Man is the product of three factors: 1, the parents who create the body machine; 2, the universal Soul (ātmā) which sets the machine in motion by introducing into it the individual soul (jīvâtmā) along with air as the driving power; 3, the mysterious power of metempsychosis (Karmavāśa) which ~~is the intermediary in bringing together the~~ acting ~~results of~~ converges the action of the two other factors for the purpose ~~of creating~~ of the creation of any particular person.

[1] See Car. p. 65, l. 10 ff. (Fr. 134); p. 100, l. 16 (Fr. 200). Cf. Car., p. 224, l. 23 (Fr. 980); p. 772, l. 21. 22 (Fr. 1785)

(24, Three factors are essential to keep the body in working order, that is, to maintain it as a living organism. The ultimate materials of which the body is built up are the five gross elements of nature. As the body is at work, these materials in its composition are being used up, and unless fresh materials are supplied in their place, the body must gradually perish. It is the food which is taken by which a constant supply of fresh materials is provided. And it is thus that the life of the body (prāṇa) entirely depends on a constant food supply: without it the body must perish.[1]

With respect to the constant supply of food, three agents are essentially requisite. These, considered as elements in nature, are air, fire, and water, but considered as elements in the body, they are air, bile, and phlegm;[2] for bile (pitta) is the repository of the fiery element (agni),[3] and phlegm (śleṣma, mucus) is that of the watery element (soma).[4] Each of the three has its own particular function to perform in the body;[5] air is the basis of all movements which secure the passage of food, and of its transformations, through the whole body;[6] bile, with the heat (uṣmā) generated within it by the fiery element (agni), secures the digestion (pakti) of food into an assimilable form, (and the consequent warmth of the body);[7] phlegm serves to lubricate (sneha) and thus to strengthen (bala) the whole metabolic machinery.[8]

[1] See Car. p. 155, l. 16.17 (Tr. 329); p. 183, l. 17, p. 184, l. 4-8 (Tr. 391-2, 394); p. 188, l. 18 (Tr. 401); p. 586, l. 13 (Tr. 1676)

[2] See Car. p. 105, l. 12 (Tr. 210)

[3] See Car. p. 66, l. 16 (Tr. 136, pittāntargata); p. 718, l. 14 (Tr. 1614, agneya)

[4] See Car. p. 66 l. 22 (śleṣmāntargata); p. 453, l. 8 (Tr. 1108).

[5] See Car. p. 100, l 11-16 (Tr. 199-200); p. 105, l. 12-19 (Tr. 210)

[6] See Car. p. 100, l. 15 (Tr. 200); p. 105, l. 14.15. (Tr. 210); p. 655, l. 9 (Tr. 1411, prakaṣati); cf. p. 65, l. 3 (Tr. 134)

[7] See Car. 100, l. 11 (Tr. 199, pittād uṣmā); p. 105, l. 16 (Tr. 210, pakti-uṣmā pitta-karma-ja); p. 475, l. 14 (Tr. 1151)

[8] See Car. p. 100, l. 13 (Tr. 199); p. 105, l. 17, 18 (Tr. 210); p. 655, l. 10 (Tr. 1411)

more insert from following page

Bile is the resultant of the digestion of food from the sour ingredients of which, it is said to be ooze out (āśayāc cyavamāna) in the duodenum and small intestines (grahaṇī).[9] Hence these organs are called the seat of bile (pitta-sthāna).[10] From them it passes into the

[9] Car. p. 655, l. 17, 18 (Tr. 1412); p. 72, l. 23 (Tr. 147). Āśaya sāmānāśaya, the portion of which is the epigastric region, between the navel and breast (stana); Car. p. 247, l. 13 (Tr. 470); Comm. Nid., p. 19, l. 3, 51, l. 2

[10] See Car. p. 687, l. 3 (Tr. 1476); also Car. p. 110, l. 10. 11 (Tr. 221)

liver and spleen, where it is accumulated (adhiṣṭhāya)[1]. The bile duct between the liver and duodenum must have been known to the ancient Indian Anatomist, though they evidently took the stream of bile to pass in the direction opposite to what it actually does (see ante § 21). In the liver and spleen, the bile becomes the source (yoni) of blood[2]; for the stream of chyle (rasa), when its flow downward from the heart it reaches those two organs, it gives off a certain portion, which, having been coloured by the bile stored in them, becomes blood (rakta, lit. red chyle), and henceforth runs on in ducts of its own. These blood vessels (śoṇita-vaha) accordingly are said to start from the liver and spleen.[3]

[1] Car., p. 475, l. 18 (Tr. 1151)

[2] See Car. p. 475, l. 13 (Tr. 1150)

[3] See Car. p. 475, l. 19 (Tr. 1151); p. 208, l. 2 (Tr. 945); Comm. Nid., p. 39, l. 3-5.

Bile is described as a clear (accha) liquid (drava) or fluid (sara) substance, which is slightly greasy (a-snigdha), hot (uṣṇa)[3a], ardent (tīkṣṇa), sour (amla), and bitter (kaṭu).[3a]

transfer to preceding page.

[3a] See Car. p. 5, l. 17. 18 (Tr. 6); p. 112, l. 19 (Tr. 228); p. 294 l. 24 (Tr. 595)

Phlegm is another resultant of the digestion of food, from the sweet ingredients of which, in the course of digestion in the stomach, it arises in the form of froth (phena-bhūta)[4]. It exists, however, in the body also in another form as the so-called ojas (phlegmatic), the quintessence of all the seven body-building tissues (dhātu)[5]. In this form, like chyle, it pervades the whole body, and functions ~~like ordinary phlegm~~, as a lubricant and invigorator of the body machine[6]. For Phlegm and ojas have identical qualities. Phlegm is described as a substance which is white (śukla)[1], greasy (snigdha)[2], cold (śīta)[3], heavy (guru)[11], sweet (madhura)[5], and plastic like clay (mārtsnya)[6]; and ojas, in practically synonymous terms, as ~~cold (śīta)~~ heavy (guru)[1], cold (śīta)[2], soft (mṛdu)[3], ~~ten~~ greasy (snigdha)[11], dense (bahala)[5], sweet (madhura)[6], firm (sthira)[7], clear (prasanna)[8], slimy (picchila)[1], tender (ślakṣṇa)[10][8]

[4] See Car. 655, l. 15. 16 (Tr. 1411-2)

[5] See Car., p. 100, l. 14 (Tr. 200); p. 353, l. 21 (Tr. 809, ślaiṣmikau jas), Comm. Su., p. 266, l. 14. Cf. p. 72, l. 25 (prakṣālayan ojas, excessive digestive fire vaporizes ojas = phlegm, see infra p. 25).

[6] Rā. phlegm, see Car. p. 113, l. 18 (Tr. 230, snehā); p. 5, l. 19 (Tr. 6, snigdha); rē ojas, see Car. p. 193, l. 11 (Tr. 412, snehā), l. 5 (Tr. 412, śarīre samantataḥ).

[7] See Car. p. 113, l. 18 (Tr. 230)

[8] See Car. p. 584, l. 7. 8 (Tr. 1672). There are six in phlegm, and 10 in ojas; the first five of phlegm also in ojas, prasanna probably corresponding to śukla, ~~and the~~ and picchila going with snigdha. The remaining four of ojas (soft, dense, firm, tender being summed up in clayey.

All three ~~elements~~, air, bile and phlegm,

and phlegm is explicitly called a prasāda [12]

from the point of view of their being essential requisites for keeping the body machine in working order, come under the category of body-building elements (dhātu)[1] still, considering that they ~~are~~ do not contribute directly to the nutrition of the body, and moreover, in certain circumstances (see infra, §25) are liable to become vitiated and mischievous (bādhakara), and in that case, require to be rectified or expelled from the body, they are classed among the waste elements (mala)[2]

The fact is that all three elements may occur in the body in two different conditions: either natural (prākṛta, ātma-rūpa)[3] and ~~unaltered~~ unalienated (aparināmin)[4], or alienated (vaikṛta) and vitiated (dusta)[5]. These two conditions must be carefully distinguished; for ~~their~~ the vitiated condition in which they are frequently met with, is not their natural condition.[6] In their natural condition, when air is the driving power, and bile and phlegm are ordinary tissues of the body, supporting digestion and lubrication, these three elements are not only advantageous to the body, but they are essential requisites to maintain its health, strength, and life.[7]

In particular, the importance of the bile tissue is shown by the fact that it is the source of the digestive fire, and of blood, both of which elements are said to be the basis of health and life.[8] Its function with regard to the creation of blood has been already referred to. With regard to fire, it is its fiery nature which makes it the creator (kartā)[9] of the internal fire (agni), which causes the digestion (pakti, lit. cooking)

[12] See Car. p. 97, l. 9; Comm. Sū. p. 262, l. 1, compare with Car. p. 218, l. 15. 16.

[1] See Car. p. 569, l. 11. 12 (Tr. ~~##~~ 1585). Cf. p. 110, l. 14 (Tr. 221); p. 105, l. 17 (Tr. 210, prasāda.[2])

[2] See Car. p. 347, l. 13-15 (Tr. 995); cf. p. 100, l. 13.

[3] See Car. p. 112, l. 20, p. 113, l. 18. 19. (Tr. 228-30)

[4] See Car., p. 112, l. 17, p. 113, l. 16 (Tr. 228-30). also Comm. Sū., p. 291, l. 11. 12, where aparināmin is explained as sahaja-siddha, established by nature, natural, and nāngōpādhi-kṛta, not put into another condition, unaltered.

[5] For other terms expressive of the vitiated condition, see §25.

[6] See Car., p. 265, l. 26 (Tr. 520)

[7] See Car., p. 67, l. 1 (Tr. 446); p. 110, l. 14. 15 (Tr. 221); p. 238, l. 21. 22 (Tr. 446); p. 347, l. 22. 23 (Tr. 996); also, rē air, p. 772, l. 3 (Tr. 1784); rē phlegm, p. 100, l. 13 (Tr. 200); rē ojas, p. 193, l. 7. 11 (Tr. 412).

[8] Rē blood, see Car. p. ~~216~~ 126 l. 15 (Tr. 258); p. 216, l. 15. 16 (Tr. 258); rē fire, p. 655, l. 4-6 (Tr. 1411), p. 182, l. 26 (Tr. 387); cf. p. 129, l. 4 (Tr. 260, fire to be cared for after bloodletting).

[9] See Comm. Sū., p. 266, l. 11 (śarīra-sthiti-hetv-agnikartṛ, creator of fire which is the cause of the existence of the body)

of food[1], and hence is called simply the digester (pakti or pakta)[2]. This operation is carried out by it in the stomach (āmāśaya), but more especially in the duodenum and small intestines (grahaṇī), which organs are hence called the "place of heat" (uṣmaṇaḥ sthāna), or the place of fire (vahni-sthāna, agny-adhiṣṭhāna)[3]. On that account, it is, like bile, the cause of good or evil, according as its condition is natural or vitiated (prakṛita, see §25)[4].

[1] See Car. p. 100, l. 11 (Tr. 199); cf. p. 655, l. 8 (Tr. 1411)

[2] See Car. p. 35, l. 6 (Tr. 67); p. 456, l. 23 (Tr. 1114)

[3] See Car. p. 203, l. 11 (Tr. 932), Comm. Nid., p. 19, l. 10. 16. cf. Car. p. 72, l. 23 (Tr. 147); p. 265, l. 14. 15. 16 (Tr. 519)

[4] See Car., p. 66, l. 17 (Tr. 136).

(25) On the other hand, when the three elements, air, bile, and phlegm are alienated, or changed from their natural condition (vaikṛta), they become the cause of every kind of disease to which the body is subject.[1] When they are in this vitiated condition, they are generally said to be "angry" (kupita, or prakupita), or to have got into a state of "anger" (kopa or kopana, prakopa or prakopana)[2] or disorder (vaiṣamya)[3], or alienation (vikṛti)[4]. Or they are said to be blighted (duṣṭa, or praduṣṭa)[5]; and it is from this last-mentioned expression that their technical name doṣa, blight,[6] (and in the aggregate tridoṣa, triad of blights) is derived, because when they are in the ~~natu~~ unnatural condition, they cause blight (duṣayitāraḥ) in the body-building tissues (dhātu) of the body.[7] Hence those tissue are sometimes described as "things liable to be blighted (duṣya)[8a]; and when actually thus affected, they are said to be blighted (praduṣṭa)[9]; and the states, or diseases, resulting therefrom, are said to be unnatural conditions of the body (vikāra)[10]. Further, since in their unnatural, or blighted, condition the three elements are, ~~even indirectly~~ altogether, useless for the nutrition of the body, they are not infrequently called waste products (mala)[11]. It must, therefore, be clearly understood, that the terms doṣa, when used (as it is sometimes in a loose way) of the three elements apparently in their natural state, is only intended to mean that those elements are the potential causes of mischief in the body, namely, if, and when, they are changed into a sublimated, or vaporized form

[1] See Car. p. 67, l. 4 (Tr. 137); p. 110, l. 15 (Tr. 221); p. 128, l. 7 (Tr. 260); p. 238, l. 22. 23 (Tr. 446); p. 347, l. 15. 19 (Tr. 796)

[2] As we may speak of an "angry sore". See kupita, in Car. p. 65, l. 10. 22; p. 66, l. 17. 22; p. 110, l. 13; p. 128, l. 8. or prakupita in p. 100, l. 12; p. 245, l. 12; p. 347, l. 15; kopa, p. 216, l. 11. 13. 15; p. 217, l. 4; prakopana, p. 203, l. 10; p. 204, l. 4. 17; p. 214, l. 15. 16; p. 217, l. 7; p. 220, l. 11; p. 238, l. 20; p. 245, l. 7. 10. 11, et passim.

[3] See Car. p. 100, l. 1. 5. 6 (Tr. 220-1), et passim

[4] See Car., p. 110, l. 15, et passim.

[5] See Car. p. 347, l. 19. 21 (Tr. 796). Once also the word pāpman, vicious, is used of disordered phlegm; Car. p. 100, l. 14.

[6] See Car. p. 5, l. 11; p. 264, l. 17; p. 337, l. 5; p. 347, l. 20; p. 499, l. 16, et passim. [7] tridoṣa, Car. p. 108, l. 4. 5, et passim.

[8] See Car. p. 337, l. 6 (Tr. 755); p. 347, l. 19 (Tr. 796)

[8a] See See Car. p. 108, l. 19 (Tr. 218); 215, l. 8-10 (Tr. 961); p. 220, l. 12 (Tr. 971); p. 499, l. 18 (Tr. 1196); p. 569, l. 11 (Tr. 1585); Comm. Śā., p. 283, l. 6; Nid. p. 60, l. 3; also Car. p. 826, l. 17 (Tr. 1897; but missing in Mss. MS).

[9] See Car. p. 347, l. 20 (Tr. 796), et passim.

[10] See Car. p. 109, l. 9. 10; p. 110, l. 15. 16; p. 264, l. 17; et passim. The ordinary term for disease is roga (as in pāṇḍu-roga, hṛd-roga, &c., p. 107, l. 13. 14. 16. 18. 19); but doṣa also occurs (as in grahaṇī-doṣa, p. 107, l. 19; reto-doṣa, p. 106, l. 8 etc.)

[11] See Car. p. 100, l. 13 (phlegm); simply malā, p. 128, l. 8; p. 187, l. 1; p. 458, l. 22, et passim; in aggregate, trayo malo, p. 455, l. 22; p. 569, l. 11, p. 805, l. 20, et passim.

they actually cause mischief (bādhakara)[1].

The term doṣa, as descriptive of the three elements in their blighted condition, is usually rendered by the word "humour". As a convenient term that word may be retained, but it is doubtful whether it expresses the blighted state of the three elements as it was conceived by the ancient Indian medical writers. They do not seem to have imagined it as a state of fluidity, but rather as a state of vaporization, produced by the action of excessive heat in the stomach. That organ they considered to be functional area of the ~~the~~ concentrated form of air (samāna prāṇa) which blows up the digestive fire[2], and which may blow it up to such a state of fierceness (tīkṣṇya) as to induce a super-heated condition of the three elements, and to convert them into vapours[3]. The terms used for vaporization are sublimating (prakṣāraṇa or prakṣālena)[3], and melting (vilāyitva)[4]. In their vaporized condition they no longer remain confined within ~~their normal~~ the organs which are their normal locality, but now pervade the whole body. It was easy to imagine bile and phlegm, if turned into ~~that~~ vapor, to diffuse, like air, through every part of the body. The idea of fluidity ~~was~~ would not fully meet the facts of the case, bile and phlegm were liquids even in their natural condition, but in the form of vapour, they could easily penetrate into all the ducts which carried body-building ~~fi~~mes, and flowing on with them into all parts of the body, they would vitiate them, and thus generate ~~produce~~ diseases.

The ancient Indian medical writers explain, that we must imagine the stomach as if it consisted of three compartments (avakāśa), two to hold respectively solid and liquid food, and the third to contain

[1] See Car. p. 347, l. 13.15.19 (Tr. 794-6).

[2] See Car. p. 655, l. 11 (Tr. 1411); p. 347, l. 4-7, with Comm. Śār, p. 139, l. 5; p. 772, l. 13 (Tr. 1784).

[3] It is for this reason that the stomach ~~may be~~ is called "the holder of the ~~th~~ humours" (doṣa-vaha) in Car. 772, l. 13.

[3] See Car. p. 72, l. 25 (Tr. 25) (Tr. 147). Here the Comm. Sū., p. 210, l. 10 wrongly refers to ojas in the heart, but the text ~~refers~~ means the phlegmatic ojas in the stomach.

[4] See Comm. Sū. 1493, l. 5.

the three elements, air, bile, and phlegm.[1] So long as food, solid as well as liquid, is taken in proper quantities, or ~~in any~~ generally in a judicious way, the three elements are not disturbed, and exercise their natural, healthy functions.[2] But if food is taken otherwise into the stomach, the three elements are disturbed in their ~~bowels~~ locality, and "angered" (prakupita).[3] For injudicious introduction of food into the stomach causes the normal condition of the digestive fire to be interfered with (agni-vaiṣamya),[4] and excessive heat ~~is~~ to be generated (uṣmaṇaḥ taikṣṇya),[5] in consequence of which the three elements ~~are~~ become overheated, and, mixed with heat (uṣmaṇā saha miśrībhūta),[6] that is, in the form of vapor, spread over the whole body.[7] For the purpose of thus spreading, they have no ducts of their own, but they utilize all the existing passages, the alimentary canal, as well as the network of ducts which distribute the body-building tissues (dhātu).[8] In those ducts they interfere with the harmony (sāmya) of the tissue on which the health of the body depends;[9] and hence the object of therapeutics (kriyā) is to restore that harmony.[10] The diseases, due to their interference, are called "inborn" (nija), that is, constitutional, diseases in distinction from the accidental (āgantu);[11] but they vary with the particular part of the body in which the interference takes place, and with the "blight", or humour (doṣa), to which the interference is due.[12] On the whole, however, it may be stated, that the upper, middle, and lower parts of the body are especially liable to the attacks of the phlegm-, the bile-, and the air-humours in the order named.[13]

It must not be supposed that, (, in the circumstances explained,) all the three elements necessarily turn into the condition of humours

[1] See Car. p. 244, l. 12.13 (Tr. 462)

[2] See Car. p. 244, l. 14.15 (Tr. 463); p. 238, l. 18.19. (Tr. 446)

[3] See Car. p. 245, l. 7.9-11 (Tr. 464); p. 238, l. 19.20 (Tr. 446); cf. p. 215, l. 1.2 with p. 214, l. 16 ff.

[4] See Car. p. 245, l. 16.18 (Tr. 465); cf. p. 184, l. 25 - p. 185, l. 1 (Tr. 394), p. 186, l. 1 (Tr. 396)

[5] See Car. p. 187, l. 23 (Tr. 400)

[6] See Car. p. 203, l. 11 (Tr. 932); p. 204, l. 17. 18 (Tr. 936)

[7] See Car., p. 100, l. 5 (Tr. 199); p. 110, l. 12.13 (Tr. 221); p. 203, l. 14 (Tr. 932); p. 204, l. 7.9 (Tr. 935); Comm. Sū. p. 493, l. 5 ff.; Vim. p. 59, l. 9. Rē phlegm, Car. 215, l. 12.13. (Tr. 961)

[8] See Car. p. 260, l. 3.4 (Tr. 503); p. 128, l. 8 (Tr. 260); cf. p. 259, l. 19. 20 (Tr. 502); p. 776, l. 13.18 (Tr. 1791)

[9] See Car., p. 50, l. 6 (Tr. 102); p. 345, l. 12 (Tr. 782-3).

[10] See Car. p. 5, l. 4 (Tr. 5); p. 90, l. 18.19 (Tr. 183); p. 345, l. 11 ff (Tr. 784); cf. p. 265, l. 21 (Tr. 519, prakṛti is ārogya).

[11] See Car. p. 109, l. 22.26 (Tr. 220); p. 110, l. 1 (Tr. 221)

[12] See Car. p. 186, l. 1.2 (Tr. 396)

[13] See Car. p. 110, l. 9-12 (Tr. 221)

(doṣa) at the same time: they may do so one at a time, though more generally any two in combination (saṃsarga), or all three in concurrence (sannipāta) do so.[1]

The causes of disease in the body may be broadly stated to be the following three:

(1) the predisposing causes (nidāna) which consist in misguided (prajñāparādha) irregularities of diet and general regimen;[2]

(2) the direct cause, which consists in the blight (doṣa) singly or combinedly, of the three elements, air, bile, and phlegm, commonly ~~cause~~ called the three humours;

(3) the accessory cause which consists in the liability of the body-building tissues (dhātu) to be blighted (dūṣya) by the three humours;[3] though the actual blight of a tissue (dhātu) need not coincide with the moment of attack by a humour, but may lie dormant for a time, just as seed sown in the soil.[4]

Though all human beings are liable to the blighting of the three elements air, bile, and phlegm, some are predisposed to the blight of one element rather more than of another. Hence there arises a threefold classification of mankind, into pneumatic (vātala), choleric (pittala), and phlegmatic (śleṣmala) people, according as their constitution is predisposed to disturbance by the air-humour, or the bile-humour, or the phlegm-humour.[5]

[1] See Car. p. 264, l. 26 (Tr. 516); p. 265, l. 3.4 (Tr. 517)

[2] See Car. 316, l. 13 ff. (Tr. 678); p. 318, l. 11 (Tr. 683); p. 773, l. 1-9 (Tr. 1788); p. 805, l. 20 (Tr. 1853)

[3] See Car. p. 214, l. 18.19 (Tr. 959)

[4] See Car. p. 452, l. 5.6 (Tr. 1105)

[5] See Car. p. 265, l. 13 ff. 24 (Tr. 519); p. 294, l. 15.25; p. 295, l. 8.9. (Tr. 594-6).

Subjects reserved for book

(1, Ancient Controversies: before and after Aristotle's time: (a, Re temperaments of men, p.265 [Tr. p.519].
(b, Re Tastes
(c. Re initial part of embryo

(2, Physiological parts of body.
(a, mother-born and father born parts.
(b, division of body, of trunk.

(2, Reproduction and gestation.

Topics to deal with

~~Ojas~~ }
Nerves }

~~Prāṇa~~

~~Doṣas~~

garbha

~~akṛti~~

see p. 100, l. 8 Tr. p. 199
male returning to śākhā² p. 187, l. 24 (Tr. 400)

~~4 Bases of Life: 1, Ojas 2, Blood 3, Prāṇa 4, Food (5, Tejas~~

~~p. 126, l. 15~~
see p. 37
~~p. 76, l. 4 ff~~

~~188, l. 16 p. 183, l. 17~~
~~see p. 1 on Food~~
~~p. 586, l. 13 (Tr. 1676)~~

~~see p. 44~~
~~p. 55 l. 4~~
~~p. 14 ll~~

To be dealt with in Book
Embryo and its growth.

Curiosities of Ancient Indian Medicine

Bibliography: Dr. Rich Fick: D. soziale Gliederung im nordöstl. Indien z. Buddhas Zeit

Jataka Translation

Mahavagga etc
Dhammapada etc.
Divyavadana
Kathasaritsagara
Mahavastu
Asoka Inscriptions
Buddhist Psychology
Atthasalini
Upasampadakamma
Barhut Stupa Sculptures
Skeletal Nature of Buddha

Fick; p. 7, note: Among the 21 kinds of brāhmans prohibited from investiture or to ancestral services are such as act as physicians (cikicchaka), cf. Manu III, 152.

Forbidden to brāhmans.

Fick p. 140 ff. At the head of a number of 10 kinds among the disreputable brāhmans whom the minister Vidhura enumerates to his king Korabya of the Kuru-land (N.W. Ind.) are mentioned those who assemble as physicians (cikicchaka), and carry bags filled with roots†, gather herbs, attend at bathes*, and murmur charms; from Dasa-brāhmaṇa Jātaka IV, 361 ff.

Buddha himself appeals from among the sippika (artists) or pessika (servants) in Vāsettha Sutta, No. 35 of Sutta Nipāta.

Unworthy of brāhmans

N.B. Kuru in the N.W. is the country of strict brāhman, opp. M.L.

i.e. "exercise unlawfully the profession of".

* mala-majjana "dirt-rubbers".

† brāhman prohibited from selling or dealing in medicinal drugs, honey, ointment; cf Fick p. 142, 159

Fick p. 153. It is probable that in ancient times in India as elsewhere, the medical profession was originally exercised by the spiritual profession (medicine-man, sorcerer); hence in the Jātakas are mentions brāhman-physicians (vejja-brāhmaṇa II, 213) as well as simply vejja (I, 455, III, 202, vejja-kulāni, medical families, III, 143). In later times, med. profession abandoned by brāhmans, and made a separate profession and caste.

On this point, the popular tradition of the Jātakas agrees with the popular portion of the Vedic literature in the Atharvaveda. Anciently the profession of Medicine and Magic was combined in the profession of the Medicine-man, that of the priest and the physician. This class of men had two levels, the higher aristocratic of the priest and scholar, and the lower of the physician and magician. The two levels tended to diverge socially. Till at last the higher repudiated all connection with the lower, and thus became two "castes".

Originally priest and physician combined (brāhmans and vaidya); later separate.

Fick p. 211. Barbers not connected with surgeons as in Europe. They were casteless and despised; cf. p. 54, because

Barbers unconnected with surgery

they were "Dirt cleaning" (III, 452, mala-majjana, p. 143)
See also p. 185, 187 on Court-barber.

Fick. 190. Poison-antidote given to a monkey, to make him immune.

Antidote. Immunity from poison

Spirits of Surgery

Physician – Surgeons – Barbers.

In Europe Surg. and Barbers not distinct. In India: barbers are outcastes, while surgeons are a caste, connected with ~~Medicine~~ Physicians. But what were the resp. functions? The barbers are also called mala-majjana "dirt-cleaners". They shaved, cleaned ears, etc.; assisted in bathing. What is meant exactly by mala-majjana? Did they do any surgical work: dentistry, operation on wounds, sores?

What about Brāhmans? Could they be physicians and surgeons? They could not be barbers.

Could the same person be a physician and surgeon? To express testimony in Charaka and Suśruta; but occasionally a distinction is implied: in chapter on tumours, Charaka says, that were operations the doctor, then surgeon to be called in, hence not to be merely physician.

Notes for "Public Lecture"

Bibliography: Wise, Jolly, Introd. & Transl. of Sushruta
Laufer on Tibet. Med., Sumanta B. Mehta on Ayurvedic Med.,
Ott. on Vedic Med in Sy.

Anatomy: Mahābhūta — Parts of body — Organs of body —
dissection -

Physiology: sāra - mala — chyle and blood - metabolism,

History: Vedic

Plants

tejana bamboo = veṇu I 2^4 cure of disease and āsrāva = mūtrātisāra
muñja - Saccharum munja, ibid. used in affections of urinary passages
reed, used as urinator, with a splash I 3^1.

surgery

Rajanī turmeric, Curcuma longa (Linn.) I 23^1, for leprosy (now skin-disease)

madhuka, sweet, as a love-spell I $34^{1.5}$

Jangiḍa tree amulet II 4^5 for viṣkandha etc.

palāśa, Butea frondosa, amulet made from it III 5^1 for prosperity
or parṇa XVIII 4^{53} ~~[illegible]~~

aśvattha as a parasite, against enemies III 6^1
VIII 7^{20} against all diseases

[illegible] a "plant" for virility IV, 4^1. VII 38^1

All plants VIII 7^1 - medicinal VIII 7^{26} amulets VIII 7^{14}
drunk VIII 7^{22}

Arundhatī and Lākṣā ?: IV, 12^1 for serious wounds, fractures
appar. a climber V 5^5
also called Lākṣā V 5^7, no name of plant.

Apāmārga Achyranthes aspera IV, 17^6 panacea; or according to name.
to wipe off all ill VII 65^1

Kuṣṭha Costus speciosus or arabicus V 4^1 against takman fever, and the disease V 4^{10}
VI $95^{1.3}$ any disease; XIX $39^{1.5.10}$ any disease & sorcery, spec. takman

śamī ? injurious to hair, a spell to propitiate VI $30^{2.3}$ see Caraka p. 182, ed.

arka tree, Calotropis gigantea, an amulet, for virility VI 72^3

pippalī ? against wounds VI, 109^1

varaṇā Crataeva Roxburghii X 3^1 as amulet
coverer protector

darbha, amulet of, XIX $28^{1.4}$ for long life & health; against enemies
$\boxed{30^1}$ - 32^1 for long life - against enemies 33^4
VIII 7^{20} generally remedial

udumbara, amulet of, XIX 31^1 for prosperity

jaṅgiḍa, amulet of (II 4^1, XIX 34, unknown drug; 34^9, tree) against viṣkandha disease (takman balāsa) and sorceries $35^{1.5}$

Plants called "all healing" XIX 40^9 (Kuṣṭha), XIX 35^5 (Jaṅgiḍa)
II 4^3 (jaṅgiḍa)

Unspecified plant for baldness and poison VIII 7^{10}
yakṣma VIII 7^5
as amulets VIII 7^{14}

śatavārā amulet, XIX 36^1 against disease and demons

guggulu, odor of incense, against all diseases - XIX 38^1

soma VI $96^{1.3}$ against sin etc.

rice & barley VIII 7^{20} (generally remedial)

milky plants VIII 7^{17} generally remedial

Other Objects

waters, ordinary, of rivers, sindhu I 4^{5}; of rain, well etc I 6^{4}; cure for all diseases I 6^{2}

of ant-hills, II, 3^{4} against flux and generally disease II 3^{7}

lead amulet against demons I 16^{3} ~~against fluxes & disease I~~

hair, ~~skin, etc of red cow against jaundice I 22$^{1.3}$, to be~~

~~transferred to yellow parrots and other birds~~ (I 22^{4})

jewel (maṇi) round amulet, blessing spell I 29^{1} for a king

gold amulet I 35

jaṅgiḍa amulet II, 4^{1} for viṣkandha = constipation, udāvarta (I 16^{3})

palāśa amulet III, 5^{1} pearlshell amulet IV 10

horn of deer (gazelle) shed III 7^{1}

~~two teeth of infant VI 140 to eat rice, barley etc which have eaten up parents~~ for luck

~~Of~~ Spell alone

for successful delivery of woman I, 11^{1}.

for stoppage of blood, fluxes, I 17^{2} (dhamani)^{3}

for fever I 25^{1} V 22$^{7.12}$ (to go to others) VI 20

for worms in entrails etc with an imaginary mill stone II 31$^{1.4}$, 32^{3}

for snake poison V 13^{1} VI 23

for protection against improper food, VI 71

for aphrodisiac VI, 101, or contra aphr. VII 90

for growth of hair VI 136 and 137

Transfer of diseases to others: fever V 22$^{7.12}$, jaundice to parrots I 22^{4} frogs

Surgery: compression of veins I 17^{4}

catheter I 3$^{6.7}$

fumigation (54^{21})

washing from head to foot VII 17. bath VII 26

Parts of body

See II, 33. yakṣma in all.

IX 8 general. XI 8, a very general XIX 15^{3}, XIX 60

~~th~~ X^{2} creation of body.

XI^{4} re breath prāṇa II 12^{7} III 31$^{6 ff}$

I 17$^{2.3}$ great dhamani, ~~1000 or~~ 100 or 1000 tubes also I 17^{3}

any amulet VIII 5, X 6

Diseases not identified

kṣetriya see III, 7 passim

diseases mentioned

fever takman intermittent V 22^{13}

balāsa brother of takman V 22^{12}. kāsaśvāsātmaka śleṣma roga VI 14^{1} VIII 2^{10} VIII 7^{10} IX 8^{10} XIX 34^{10}

cough sister of takman V 22^{12}

scab cousin of takman V 22^{12}

jaundice IX 8^{9}

see also IX 8^{20}

viṣkandha II 4$^{1.3.4}$.

kṣetriya II 10^{1}

yakṣma II 10^{6} (= kṣetriya)

takman, son of Varuṇa (I 25^{3}); product of heat I 25^{4}

leprosy I 23^{1} 24^{2}

Diseases (1) inflicted (a) by god: in revenge or as punishment for sin; either directly or as instruments of god
(b) by demons, either direct or as instruments of god
(2) diagnosed cause; often identified with demon: latter, supposed to be driven out by spell.
if recognized, remedies may be used, but efficacy depends on spell,
(instrument of administration, or place of action.
(3) Nature of disease unknown; dealing only with symptoms, latter some diseases recognized as fever, diarrhoea, jaundice, dropsy etc, but even if recognized, remedies are powerful, efficacy depends not only on their own properties, but on spells etc. (cures jaundice)

Historical Review

Number of schools:
School of Atreya prevails over others.
Prior to 1st: N.W. India, mountainous (Himalaya, Kashmir)
Natural explanation of fact: drugs grown there (some, eg jaipāla, etc, now unknown)
anatomy of these parts, as cold climate
Taxila, chief university.

Differences: subjects of dispute:
(1) ontological: vāyu, soul, body
(2) botanical: number of plants
(3) embryological: earliest part of embryo
(4) humoral: temperaments of men.

Disease, spells against, over 100 (44^{26})

" = manifestation of will of supernatural power (46^{16})

= power of one of host of demons (46^{18}) by which man surrounded.

= disease hardly distinct from possession (46^{20})(50^{21})

= identical with demons (46^{72}), takman = fever (47^{2}) son of Varuṇa (49^{24})

apacit = insects fly through air, and cause scrofulous sores (47^{6})

They are their weapons to punish sin:
- diarrhoea, ascribed to arrows of Parjanya (rain-god) (47^{36} 49^{23})
- dropsy – to Varuṇa (47^{20})(49^{7}) with heart disease (49^{10})
- sharp pains to spear of Rudra (47^{30} 49^{62}); tumours to arrow of do (47^{31})
- leprosy by Maruts (47^{35})(48^{65})
- fever, by Agni, also headache, cough (47^{38} 49^{21}), most dreaded (48^{2})

jvara not used (48^{5}) 49^{50}

symptom of fever (48^{21})

jaundice, headache, cough, spasm, itch, red eruptions (48^{25}) (52^{16} 53^{2})

abscesses, tumours, scrofulous swellings (48^{62})

diseases of ear, eye (49^{70})

bleeding (50^{2})

poison of snakes (50^{14}) scorpions (53^{3})

loss of hair (50^{48})

remedial practices

Means of cure: merely magic ceremonies to drive away demons (46^{29})

" : providing amulets (46^{31}) to resist attack

" : spell to dissipate, remove harm done by demons (46^{33})

: no diagnosis, cause unknown; only symptoms (47^{56}), and these too indefinite to recognize disease (47^{58}/49^{50})

(panaceas) spells same against great variety of diseases (47^{66})(49^{58})

: Kuṣṭha plant, specific for fever (48^{9})

: spells for thirst and fright (50^{36})

Efficacy of remedies depends, not only on themselves but on spells, 54^{10} dealing with leavings of offering (53^{24}); administered by a horn or red vessel (53^{39}); at crossroads, or confluence of streams (53^{40}), time of ceremony (53^{45})

Materia Medica (water (50^{65}

earth from anthill (51^{3}) as amulet, drink; formic acid as cathartic (51^{9}); for poison (51^{6})

~~ant-heap earth, as amulet (51^{12}~~

earth from mole hills (51^{18})

Plants: 51, ^{26}ff. as panacea 51^{31}, as antidemoniacal 51^{60};

for fanciful etymologies 51^{73}.

for open sores parasitic leaves 51^{77}

for hair-growth 52^{4}

– for jaundice various things 52^{16} (yellow colour); for poison, as panacea; also yellow bird (53^{2})

for constipation, putika grass 52^{62} (offensive odour)

liquorice on account of sweetness 52ff

Products of cow 52^{65} } as vehicles
Food of any sort 52^{62}

Dog's saliva and spittle 52^{75}

Commentators on spell Kauśika sūtra, on practices to use them.

Āyurveda recognized as an after-Vedic upaveda of the Atharva (45^{44})

Anatomy: various external subdivisions, many internal organs (45^{69})

vague notion of internal canals (entrails, etc.) (45^{80})

Three elements unknown in earliest (46^{2}), but in later (46^{11})

~~Ceremonies of means of driving away demons~~ (46

Causes of disease: worms (46^{24} 49^{75}), insects (47^{6}), Indra invoked against them (47^{14}), round demons

: demons and sorcerer himself (46^{65})

: one of greater gods (47^{20}) less frequently: Varuṇa – dropsy

to punish falsehood (47^{21}), takman his son (47^{24}),

spells against Varuṇa (47

Demons: vague, indefinite number (46^{35})

" : piśāca devouring flesh (46^{39})

" : Kaṇva, prey on embryo (46^{42})

: suckers of blood, fatness (46^{44})

: dog demon of epilepsy (46^{45})

: gandharva, apsaras, cause insanity (46^{57}), steal away senses (46^{57})

: enter with food (46^{59}); sacks of grain to be surrounded by hot pebbles (46^{63})

: seize children (50^{33})

Medical Practices:

(a) surgical (probably of urethra, 53^{58}. but doubtful saying "splash", or pouring water to effect micturition 54^{2}
compress of sand to stop bleeding 54^{5} I
application of leeches, but with spell 54

(b) remedies used with spell as oblation 54^{20}

(c) Mode of proceeding see $54^{28-36.45ff}$

Sketch of the Lecture

The history of Indian Medicine can be divided into two periods: pre-historic and historic.

Our knowledge of its prehistoric period is derived from the Vedas. Vedic literature falls into two classes: literary and popular, or Rigveda and Atharvaveda. Both are ~~poetic~~ metric compositions, but the former of a higher class, the latter of a lower class. The former were prayers and hymns; the latter invocations and incantations. The former were adapted for religious purposes by the priestly class in two occasions (Yajur & Sama) for ritual purposes, and prose commentaries and treatises (brahmana, aranyaka, upanishad) were written on them. The latter were largely used for magical ~~purposes~~ and medical purposes. Medicine, in those early days was not a science. The men who exercised it, were medicine men, ~~but~~ most probably people who belonged to the lower grades of the priestly literary caste. The higher grades and better classes of the priestly caste looked down upon the Atharvaveda, and it was long before that popular and lower Veda was admitted to the sacred canon. It is from that, however, that principally we derive our knowledge of prehistoric medicine in India. It was the professional knowledge of the medicine men.

[760 Weber 145]

Atharva Veda = Spell-Knowledge (731) (W. 105) } W. p. 106 Weber

Rig-Veda = Song-Knowledge (1028 hymns (W. 57) "

written in certain small priestly circles (W. 70)

Rig-veda = Veda of verses, entirely lyrics in praise of diff. gods, book of but higher, Md. 31 hymns or psalms to higher gods as conceived by advanced and refined sacerdotal class } Md. 30 31

Atharva arose later, canonized after long struggle (Md. 30. metrical; more primitive stage of thought; book of spells, incantations to demon world; teems with witchcraft as current among lower grades of population, and derived from immemorial antiquity.

"on sacrificial ceremonial" (Md. 31), theological treatises (Md. 32)

Sutras = compendious treatises on Vedic ritual, and on customary law (Md. 35) Period of evolution of science and schools. — aphorism, "laconic telegram" (Md. 35); 500–200 B.C. (Md. 36)

Atharva deals with domestic or political rites, a heterogeneous collection of spells of sorcery against hostile agencies such as diseases, noxious animals, demons, wizards, foes, oppressors of Brahmans; but also auspicious spells to secure harmony in family and village life, reconciliation of ~~families~~ enemies; grant of long life, health, prosperity; protection on journey, luck in gambling, etc. (Md 185)

Sketch of the Lecture

The History of Indian Medicine can be divided into two periods: the prehistoric and the historic period.

Our knowledge of the prehistoric period is derived from the Vedas, that is, the ancient sacred literature of the Indians, consisting almost entirely of short metrical compositions [some ritual, most all general]. It falls into two divisions, a high-grade and a low-grade, known as the Rigveda ~~or~~ book of ~~sacred~~ hymns, and the Atharvaveda or the book of spells. Both were, broadly speaking, the productions of the priestly class of the people. But the songs of the higher grade Rigveda were composed ~~produced~~ by that ~~class~~ these men in their capacity as ~~priest~~ sacrificing priests, while the songs of the lower grade Atharvaveda were ~~[illegible]~~ produced by them in their capacity of physicians, or rather of medicine men. It is for this reason that it was only after a long struggle that the ~~Atharvaveda~~ "Book of spells" was admitted to an equality with the Book of Hymns, as a part of the sacred ~~Scripture~~ ~~canon~~ canon of the Indians.

It is with the Atharvaveda, ~~therefore~~ with which we are mainly concerned in dealing with Indian Medicine. ~~The full older and fuller name of that book was the name of the book~~ That name properly means the Lore of the Fire-priests. The cult of fire, in those most ancient times, held as high a position among the Indians, as it did among the Iranians of Persia; and ~~its priests~~ the men who served at the fire altars ~~that cult~~ were as much ~~magicians and sorcerers~~ medicine men as they were priests. Their stock in trade consisted of the spells, oblations and remedies and incantations by which they professed to be able to heal the diseases of ~~the body those others~~ of any member of the ~~worshippers the~~ fire-worshipping community. These spells are collected in the Atharvaveda, the book of spells, which therefore may be said to be the oldest Indian medical textbook. They are ~~of a practical~~ ~~intended for practical~~ not all medical,

sorcerer, called yātudhāna "holder of a familiar demon"; called as medicine man

I 7' (8')

2/

~~variety of purposes, which are not necessarily evil~~ nor are they necessarily of malign intent. Thus there are spells to ~~cause~~ secure harmony in family and village life, protection on a journey, luck in gambling and so forth. But all medical spells, though hostile to the cause of disease, are of course friendly to the patient. ~~All diseases were ascribed to the agency of a supernatural power, in most cases to some kind of demon, Most of these were supposed to surround a host of whom of many as the ... supposed the ... men~~ They are mostly in the form of an invocation of ~~some deity~~ address to some divinity to expel any ~~a~~ demon who was supposed to have caused the disease. For all diseases were ascribed to some kind of demon who caused it either on his own initiative or as the punishing instrument of a higher power. These demons were supposed to be as ~~innumerable~~ various as there were varying bodily ills. There were e.g. demons who devoured the patient's flesh (Ath. V, 29^{7}), others who fed on embryos, ~~who drank~~ (ib.), others who in shape like dogs and apes fasten upon women (Ath. IV 37^{11}); others again who cause madness (Ath. VI, III^{3}). Such demons were often supposed to enter ~~the body with the food that was taken~~ one's body with one's food (Ath. V, 29^{6}), which ~~seem~~ points to some recognition of ~~the importance of nutrition~~ irregularity in diet as a cause of disease. Still the essential nature of disease was supposed to be possession by a demon, and cure consisted in succeeding to expel him from the body. To secure his expulsion, physical natural remedies might be used, but they ~~only essential~~ ~~means~~ absolutely necessary, and in ~~many~~ any case, where any natural remedy was unknown, the only available remedy was the magic spell. ~~Such remedies of natural remedies are said to be water (Ath. III, 7^{5} VI 91^{3}) dug up by ants, i.e. the earth which white ants make their high nests of and which contains their moisture (Ath. II, 3^{4}, Tr. not p. 40, Ath. VI, 100^{2}~~

Others who drank his blood, or took away his fatness (Ath. II 25^{3}) [illegible]

gugulu XIX 38$^{1.2}$ panacea for all yakṣma

palāça XVIII 4^{53} (=parṇa)

Herbs: VI 96$^{1.3}$
rice, barley VIII 7^{20}
aśvattha, darbha soma VIII 7^{20}

generally, known by ṛṣis VIII 7^{26}

milky plants VIII 7^{12}

used as amulet VIII 7^{14}, as drink VIII 7^{22}

cure poison, and balāsa, witchcraft VIII 7^{10} yakṣma VIII 7^{15}

silācī or arundhatī, lākṣā, a climbing plant IV 12 (Tr. I, 166)
for sores V 5^{4}, climbs on aśvattha, plakṣa, khadira, dhava, nyagrodha and parṇa V 5^{5}

Formic acid? have white ants any?

The most important of the natural remedies are the medicinal ~~herbs~~ plants ~~a~~ ~~Depend~~ not infrequently ~~mentioned~~ referred to in the spells, but from the way they are mentioned, it is evident that ~~they were~~ the knowledge of any specific virtues they might possess was ~~rather~~ very vague. ~~It may ascertain~~ There are but few of the ~~the~~ very large number of vegetable drugs, known to Hindu medicine, which are specifically named, and it is only quite exceptional that they are indicated as specific remedies for any particular disease. Those that are named are the following:

The existence of these was known (Ath. VIII 7^{26}); and they

(4) Aśvattha, Ficus religiosa Linn. (Ath. iii, 6^1 viii 7^{20})
1, Apāmārga, Achyranthes aspera, Linn (Ath. iv, 17^6 vii 65^1)
2, Arka, Calotropis gigantea R. Br. (Ath. vi 72^3)
3, Arundhatī ~~or Lākṣā~~, Butea frondosa Roxb., ~~and~~ the ~~lākṣā~~ or lac found on it (Ath. ~~[illegible]~~ iv 12^1 v $5^{5.7}$ *.

also called Lākṣā tree on acct of

* It is also a climbing plant, in v 3, climbs ~~tree~~ up the tree, refer to lac, which on account of its red colour is compared to a lustful girl (rajasvatī); lac is found on various trees of the Ficus ~~species~~ kind (v. 5 nyagrodha F. bengalensis, Ficus Tjakela = plakṣa, F. religiosa aśvattha, but especially on Butea.

5, Darbha Eragrostis cynosuroides Rom. et Sch. (Ath. VIII 7^{20} XIX 28^1 etc.
Barhis (v $12^{4.8}$ v 22^1 v 26^6
6, guggulu, gum resin of Boswellia serrata, Roxb. (Ath XIX 38^1)
7, Jaṅgiḍa, not identified (Ath. ii 4^1, XIX 34^4 35^1)
8, Kuṣṭha Saussurea Lappa, Clarke (Ath v 4^1 vi $95^{1.3}$ XIX $39^{1.5.10}$
9, Madhuka, Liquorice, (Ath. I $34^{1.5}$)
10, Muñja ~~[illegible]~~ Saccharum Munja Roxb. (Ath. I 2^4
12, Palāśa or Parṇa (see No. 3) Butea frondosa Rox. (Ath iii, 5^1 xviii 4^{53})
(14) Rajanī Curcuma longa Linn (Ath. I 23^1)
(13) Pippalī Piper longum Linn (Ath. vi ~~[illegible]~~ 109^1)
(15, Śatavarā (Asparagus racemosus (Ath. XIX 36^1)
17 Soma, not ident. (Ath. VI $96^{1.3}$
18, Uḍumbara Ficus glomerata (Ath XIX 31^1)
16, Śamī Mimosa Suma Roxb. (Ath. ~~[illegible]~~ vi $30^{2.3}$)
19, Varaṇā Crataeva religiosa Forst. (Ath. X 3^1)
20 plants with milky sap (Ath. VIII 7^{15})
(21, hemp (Ath. II 4^5)
(22) rice and barley (Ath. VIII 7^{17})

Among these ~~three~~ only ~~No. 14, 16, one~~ can be said to be treated as specific remedies, of No. 3 for serious wounds and fractures, ~~No. 14 for leprosy~~ and No. 16 for loss of hair. The others are ~~said to be good for~~ praised as remedies

~~No. 3 gum is astringent~~ No. 14 only colouring

for a variety of diseases; ~~and some indeed for all diseases e.g. No. 4 (A. VIII 7^20)~~, No. 1 (A. VI 65^1) ~~No. 8 (A. VI 95~~ and some indeed ~~are said to heal all diseases, e.g.~~ for, as No. 8 (A. XIX 40^9) and No. 7 (A. ii 4^3, XIX 35^5), for all diseases. Indeed this all-healing virtue is ascribed to all medicinal plants (Ath. VIII 7^26). Moreover, ~~some at least of them~~ ~~they~~ i.e. are considered to be doubly as effective if they are worn in the form of amulets, Ath. VIII 7^14 ~~e.g. No. 21, 12~~; and this said explicitly amulets made of No. 12. 21. 5. 18. 7. 15. No. 14 turmeric is treated as a specific for leprosy, clearly only because its ~~red~~ colour ~~would~~ cover the leprosy spots. On a similar "sympathetic" ground ~~two the~~ products from a red bull (hair, skin) is treated as an effective against jaundice, which is thereby said to be transferred to yellow parrots and other such bird (Ath. i 22^1-4) Similarly it is recommended that the first two upper teeth of an infant should be made both to eat rice and barley, ~~and this~~ food of the parents to make ~~them~~ it auspicious for them (Ath. VI 140)

No less vague was the knowledge of disease in the Atharvavedic period. ~~Only few [illegible] diseases are [illegible] by name. The~~ The medicine man of that period could only concern himself with his patient's symptoms. He knew too little of the internal anatomy to recognize the nature of the disease and its cause. In the circumstances ~~Naturally~~ he assumed the presence of a demon who possessed the patient, and whom he might hope to exorcise by means of his spells. ~~The most of the dreaded diseases, was fever which is referred to under various names, yakṣma, balāsa, and others, according to certain observed symptoms were consumption and fever. The former is often referred to under various names, such as yakṣma and balāsa, according to various observed symptom.~~ Fever

The temperature of the body intermittent (Ath. i 25^4 V 22^10.13) and spots (V 22^3 scarlet fever). They evidently refer to a variety of febrile diseases, the identity of which was not recognized. Hence they were ascribed to a ~~demon~~ supernatural being called takman, once described as a son of the god Varuṇa i 25^3. The object of the spell is/was to expel him.

To judge from these spells two of the most common and most dreaded ailments which he was called upon to combat ~~were~~ consumption and fever in various forms. They are referred to under different names, e.g. yakṣma (V 4^9) and balāsa (Ath. V 22^11.12), according to different observed symptoms. Among the latter are often mentioned coughing, spitting, and the periodical the rising and falling ~~temp~~

Ath. I. 12^3 (headache) Ath V 22^10,11,12

N.B. Kuṣṭha is specific Ath. ~~[illegible]~~ V 4^1, born on Himālaya V 4^8 VI 95^3
together with soma V 4^7

N.B. fever makes yellow (V 22^2); hence god of yellowness i 25^2
scarlet fever · V 22^3 (ruddy)
also VI 20^3 more redness of heat

from the patient, and ~~by preference~~ to persuade him to take ~~along~~ up his abode in some else body), by preference in that of a foreigner (Ath. V $22^{7.8}$) In less important cases ~~the demon was~~ only the medicine man was content by transferring the demon of the disease to an animal supposed to be sympathetic to him; thus jaundice was sent off to yellow birds (Ath. I 22^{4}), and fever to frogs (. X .) As prophylactics, against the attack, or the return of a disease-demon amulets ~~were~~ made effective by a spell were in use. These amulets might be made of lead (Ath. I 16^{2}), gold (Ath. i 35^{1}), horn (Ath. iii 7^{1}), jewel (Ath. i 29^{1}), pearl-shell (Ath. IV, $10^{1.5}$; or various kinds of medicinal wood ~~from medicinal trees~~, e.g. palāśa or parṇa (Ath. iii 5^{1}), udumbara (Ath. XIX 31^{1}), or grass (e.g. darbha XIX 28^{1}).

(but yellowness may not mean jaundice but fever, see preceding column

The only attempt at what may be called ~~surgery~~ operative medicine is the use of hollow reeds as a kind of catheter to relieve the bladder (Ath. I $3^{6.7}$ Of external applications there is mention of a ~~sort~~ compress or bandage to stop bleeding (Ath. I 17^{4}), ablution (Ath. VI 17) from head to foot; fumigation ($54^{?}$)

? ?

~~In these conditions, prevailing in ~~that early~~ the earliest period, the ignorance of pharmacology ~~of plants~~, anatomy and pathology, there could be no progress in medicine.~~

The preliminary conditions

It was the extreme ignorance ~~in pharmacology and~~ with regard to the ~~remedial~~ medicinal powers of plants and the structure of the human body ~~anatomy which hindered the~~ in those early days which ~~prevented an advance~~ was the difficulty in getting at a knowledge of the true nature of disease and elaborating an ~~suitable~~ appropriate method of healing them. Gradually this difficulty began to be removed, as capable men arose, here and there, among the medicine-men, who took the trouble to study the nature of plants and the ~~and~~ moreover the structure of the body. And this brings ~~us~~ to the threshold of the historic period of medicine. There is one point which very strikingly illustrates the transition of medicine from the early stage of

Beginning of anatomy Ath. X 2 ii 33 i $17^{2.3}$ xi 4

magic to the later stage of science. This is ~~term~~ the name given to fever in the two periods. In the earliest (of uncertain) days fever ~~was~~ essentially is the demon, called *takman*; in the days of science, that name *takman* has ~~entirely~~ absolutely disappeared, its place ~~has been~~ is taken by the term *jvara*, heat. It shows that medicine had now done with the idea of the demon, and knew that fever was simply a condition of the body characterised by an increase of its normal temperature.

The beginning of that transition period is wrapped in complete obscurity; but we some fairly reliable indication of ~~[illegible]~~ the time when it terminated with the establishment of the medical system which has dominated Indian medicine from that date up to the present day. According to a well-known Buddhist tradition which there is no good reason to mistrust, there lived a famous physician, called Jīvaka at the Court of King Bimbisara at Pāṭaliputra (Bihar) who was a friend of Buddha. ~~The latter~~, The death of Buddha, it is now generally admitted to have occurred sometime in the early part of the 5th century B.C.; to be precise, as I believe, in 483 B.C. He died at the age of 80. His life, therefore, was the period from 563–483 B.C. Jīvaka the physician was his friend and contemporary. ~~He was also a pupil~~ ~~[illegible]~~ I He had studied medicine at the university of Taxila under the famous professor called Ātreya (Rockhill, *Life of Buddha*, p. 65). And it is this Ātreya whose system of medicine has become dominant. It follows, that Ātreya's date must be somewhere in the middle of the 6th Cent. B.C.

Now Ātreya was not the only teacher of medicine in those days. Indian medical tradition reports the names of a fair number of other famous medical teachers, who ~~were~~ are ~~more or less in~~ represented as having been contemp. of Ātreya. There are ~~reports~~ reports of public disputations held by Ātreya with other great teachers. This may only be a way of saying,

483
17
500

80
17
63

563
80
483

He is famous as a children's Doctor, and formulae of his are actually quoted in the Bower MS.

and need not be taken to mean that they were contemporaries in the strict sense of the term. ~~For~~ Very possibly it simply means that ~~in the~~ during that transition period there were elaborated and existed different ~~theories~~ theories of medicine, partly contemporary, partly successive, which contended with one another for mastery, and from which the system of Ātreya finally emerged as victor.

Like Takshila, these systems were all located in the N.W. of India (Kashmir, Ujjain, Himālaya); as shown by names and epithets of professors. Also by birth of anatomy.

Ojas

discussion on it in Comm 508, and 260

= Ojas placed before semen, p. 145, l. 10. (Tr. 309)

= Ojas placed after semen, p. 184, l. 12

= Ojas in the sāra of 7 Dhātus, Comm. 484, l. 16, hence named semen
the Dhātus.

= Ojas is holder of life (prāṇa-dhāraṇa-kartṛ) hence named separately
from 7 Dhātus, Comm. 484, l. 16. 17.

= Ojas is born of semen, Comm. 484, l. 17, hence 8th Dhātu.

Ojas is the 7 tejas of the 7 Dhātus, verse quoted (from Bhav.) Comm. 484, l. 18. 19.

Ojas is a clear fluid (substance) in heart (hṛdi) p. 96, l. 25 (Tr. 193) Comm 260

Ojas may be attenuated (kṣaya), p. 96, l. 24 (Tr. 193)

Ojas has no special seat (vaha), hence named p. 260, l. 2. (Tr. 503)

Ojas apparently identical with vīrya which is different through whole
body, p. 332, l. 13 ff. (Tr. 738-9), just as ojas is.

Ojas the same as phlegm (śleṣma) p. 100, 13 (Tr. 200); and called
śleṣmika, p. 353, l. 21 (Tr. 809) also Comm. 266, l. 14, and has equal
measure (pramāṇa) with semen, p. 353, l. 21 (Tr. 809) f.
See Tr. p. 809 note; suggests that "partial derivation of phlegm, known as ojas".
The characteristic of phlegm is also whiteness, p. 113, l. 18

Ojas called rasa and said to be staying in heart (hṛdi rasa) p. 226, l. 445
(Tr. 982). The reference is to the body being the vaha of rasa chyle, so
Comm. p. 83 f. 11, but it gives another opinion according to which it is
ojas, however, refers to text XXX, and because ib. p. 226, l. 2, the body,
is said to be full of "ojas" (ojas); but see p. 96, l. 5. 6 (Tr. 192)

Ojas omitted in list, p. 147, l. 11 (Tr. 363), also in list of Suśruta p. 186, l. 26 and
p. 187, l. 19 (Tr. 399)

Ojas is the total (samudāya) of 7 Dhātus Comm. 260, l. 1, hence not an
8th Dhātu (Comm. ib.)

See also text p. 193, l. 11 (Tr. 412)

Ojas is the 7th among the 10 gatayaḥ of prāṇa, p. 352, l. 12 (Tr. 806), but
cf. p. 189, l. 13. 14 (Tr. 402)

Ojas acts as semen (sukravisesa) Comm. 509, l. 3

Ojas with rasa in foetus, p. 335, l. 18 (Tr. 749) 25

Ojas normally food, Bh. names all Dhātus p. 655, l. 5

This verse is perhaps interpolated or taken from text XXX

Ojas, weakens by fire, p. 72, l. 25 (Tr. 147)

but is goes through the rasa-duct, continually in embryo, p. 335, l. 18 (Tr. 749)

Ten qualities of ojas, p. 584, l. 7. 8 (Tr. 1072)

see p. 655, l. 7.

see p. 100, l. 12, 13. Phlegm in normal state (prākṛta) is called
strength (bala), when a-normal (vikṛta) it is called
waste (mala); it is also known as ojas".

This apparently means that phlegm generally (as identical with
rasa chyle) is bala, but so far as it is the rasa which turns into flesh, it
is liable to be a-normal and become excrescences (balāsa-kara) or mala.

Ojas has vaha, p. 193, l. 5, resides in the heart (hṛdi)
has 10 dhamanis p. 192 ff. 4. 5. 13. it is the sāra of the
embryo, p. 192, l. 9, it is rasa of the body 192, l. 11, without
it life dies; life breath depends on it (192, l. 11. All parts
of ojas = rasa chyle or lymph. For food is life p. 184, l. 18, 183 f. 17
(Tr. 394)

Food is the beginning and end of
the whole theory

Sukra

Semen is th "highest goal of food" p. 226, l. 25 (Fr. 983)

Semen, description of p. 320, l. 23. 24 (Fr. 696) see p. 21

Semen is composed of the 4 elements, p. 21, note p. 320, l. 24 p. 321, l. 1

Semen passes from body to another, Comm. p. 21

Semen joins [atma, at moment of entering womb, p. 21 332, l. 8 (Fr. 737)

Semen, 4th organ, ans 3rd, factors of embryo, p. 24 326 (Fr. 709) p. 332 l. 6

Sukra-sthāna p. 453, l. 7 (p. 1108)

Three doṣa

Dūṣya

~~See p.108, l.19. p.569, l.11. (Tr.1585)~~
~~p.215, l.8-10 (Tr.961); p.220, l.12 (Tr.971); Tr.110.~~
~~Tr.218, note 4   Also p.499, l.16.17 (Tr.1196).~~
Weight of [illegible]

~~1, They have no duct of their own. p.266, l.3~~
~~vāyu carried by all dhamanī, Comm. Vim. 59, l.9~~

~~p.108, l.19 = dhātu, Comm. Sū. p.283, l.6 (Tr.218), also p.220, l.12 (Tr.971) = dhātu; also p.499, l.16.17 (Tr.1196), also 569, l.11 (Tr.1585)~~
~~p.215, l.8-10 (Tr.961) = affected by phlegm, i.e. 7 dhātu and Rasa, lasikā, Comm. Nid. 60 l.3.~~

~~2, There are three vikāra humours, p.264 l.17 (Tr.515), p.337, l.9.8 (Tr.755); p.5, l.11 (Tr.6); p.499, l.16, p.347, l.19~~
~~They harm (dūṣayanti) the body; they cause diseases vikāra.~~

~~doṣa and dūṣya [illegible] p.214, l.17 18 (Tr.959)~~
~~p.214, l.20.21 causes in general of disease (Tr.959)~~

~~3, They may act at 2 (saṃsarga) or at 3 (sannipāta), p.264, l.26 (Tr.516)~~
~~p.265, l.4 (Tr.517)~~

~~4, They disturb the harmony of the dhātus, and hence disease, p.345, l.1 (Tr.783). Harmony is disturbed by bad conditions, use of food of various tastes (p.345, l.1 ff. Tr.784) which by their immense use cause anger (prakopa) of the 3 bile etc (p.238, l.20 Tr.446)~~

~~also p.50, l.6 (Tr.102) cf. p.90, l.18.19 (Tr.183) therapeutics (kriyā) to restore harmony of dhātus; also p.5, l.4 (Tr.5)~~
~~also p.238, l.~~20~~ 19.20 (Tr.446)~~

~~5, They diffuse, travel throughout body, p.100, l.5 (Tr.199); cf. p.128, l.8; cf. p.259, l.20.~~
~~upward, downward, across, also p.110, l.12.13 (Tr.221) (sarva-śarīra-cara)~~

~~6, They are source of inborn (nija) diseases. p.109, l.26, p.110, l.5.6, also p.186, l.1 ff. (Tr.396); p.187, l.1 (Tr.398) (diseases).~~

~~7, Cure of diseases by abnormal doṣa, p.110 ff, l.7 ff (Tr.224); p.186, l.5 ff (Tr.396)   diseases vary according to parts Tr. p.396~~
~~Text p.186, l.1~~

~~8, Mala synonym of doṣa, p.100, l.13 (Tr.200) (= vikṛta); p.128, l.8 (Tr.260), p.187, l.1 (Tr.398), p.453, l.22 (Tr.1112) trayo malāḥ; p.456, l.22.~~
~~see 569, l.11.12 (Tr.1585) where the three malas are counted as dhātavaḥ, which when they are doṣa, give rise to visarpa (Erysipelas)~~

~~9, Doṣa provoked by senses and sensations, p.318, l.11 (Tr.683).~~

~~10, Doṣa may lie dormant in dhātus for a time, as in intermittent fever p.452, l.5.6 (Tr.1105)~~

~~11, prakṣālana or prakṣāṇa, p.72, l.25 (Tr.147) purifying. Comm. Sū. p.210, l.10 [illegible] refers ojas to heart~~
~~See also Comm. Sū. 493, l.5, vilāyitva having melted by process of heat (uṣma or agni)~~
~~tīkṣṇatva~~

215, l. 6 — ^{1}medas, ^{2}māṁsa, ^{3}kleda, ^{4}śukra, ^{5}śoṇita, ^{6}vasā, ^{7}majjā, ^{8}lasīkā, ^{9}rasa, ^{10}ojas.

499, l. 16 — ^{1}medas, ^{2}pitta, ^{3}ambu, ^{4}śukra, ^{5}asra, ^{6}vasā, ^{7}majjā ^{8}lasīkā, ^{9}rasa, ^{10}ojas, ~~ambu~~

Doṣa

1) Bile and phlegm attacked by apāna, p. 535, l. 4 (Tr. 1371)	Bile and Phlegm
2) loci of air-humour vāta, p. 110, l. 7.8 (Tr. 221) Prāṇa 2	Air
3) Three permanent elements of body: Air (wind) bile, phlegm. p. 105, l. 12. 14. 15 (Tr. 210) Prāṇa 2	Wind, bile, phlegm, master-principles in body
4) doṣa sublimated (utsāgitva) by intensity (tīkṣṇa) of fire. Comm. Sū. p. 493, l. 5.	Sublimation of 3 Doṣa
5) p. 66, l. 16.17. (Tr. 136) Fire dwells within the bile, and causes good or evil (śubhâśubha) according as it is excited or not (kupitâkupita). So also soma in śleṣma p. 66, l. 22	Fire in Bile See also p. 182, l. 26 (Tr. 389), p. 655, l. 4 (Tr. 1411) life (prāṇa) dependent on fire
6) p. 69, l. 1 (Tr. 137) when normal cause of health, when abnormal, as doṣa, cause disease	Cause of health & disease
p. 535, l. 3.4. (Tr. 1371) obstructed apāna goes upward and obstructs others (prāṇa) as well as pitta and śleṣma	Apāna cause of disease
p. 193, l. 11 (Tr. 412) Relation of prāṇa, wind to ojas; cf. p. 655, l. 4 (Tr. 1411)	Relation of prāṇa, wind & ojas
p. 260, l. 3 Doṣa have no duct of their own.	Doṣa no duct.
(Tr. 221) Prāṇa 2 p. 110, l. 9, pakvâśaya main locus of air (vāta) as doṣa, Comm. Sū. 289, l. 6. l. 10.11 āmâśaya main locus of bile (pitta) as doṣa l. uras main locus of phlegm (śleṣma) as doṣa	Main Loci of 3 Doṣa
p. 204, l. 4 ff. on sublimation of bile 9 l. 17 ff. on sublimation of phlegm 9 p. 203, l. 10 on sublimation of wind 9	Sublimation of of all three see p. 72, l. 25 (Tr. 147) pratsārayan, Comm. Sū. 210, l. 10. sthānāt bhraṃśayan = kṣapayan, expelling from its place (hṛdaya); but more probably from its place as natural phlegm, by sublimation and diffusion.
p. 203, l. 11 Comm. adhiṣṭhāna of agni is grahaṇī 9 (Vid. p. 19, l. 10.16)	Place of Agni

Bile

~~p. 208, l. 2 (Tr. 945) blood-bearing ducts originate in liver and spleen.~~

~~p. 475, l. 13 (Tr. 1150), blood is the *yoni* (origin) of bile.~~
~~l. 18 (Tr. 1151), liver and spleen are *adhiṣṭhāna* of bile~~
~~l. 19. (Tr. 1151) the blood-bearing ducts are its conveyors. Comm. Ind. p. 39, l. 3 ff.~~

~~p. 35, l. 6 (Tr. [illegible]) Heat is said to cook (Tr. 793). bile is called the cooker (*pācaka*), bile is closely connected with heat, p. 100, 11 (Tr. p. 194)~~
~~p. 105, l. 16, it digests and gives warmth.~~
~~fire called *pakti*, p. 456, l. 23~~

~~p. 86, l. 16. bile is seat of fire (Tr. 136)~~

~~p. 5, l. 17-18 (Tr. p. 6) qualities of bile: slightly greasy, hot etc.~~

~~p. 105, l. 16 (Tr. 210) function of bile in natural state.~~

~~p. 110, l. ~~8~~ 9-10 (Tr. 221) loci of diseases caused by abnormal bile~~ 34

~~p. 718, l. 19 (Tr. 1614) bile is *āgneya*.~~

~~p. 655, l. 18 v. 8 (Tr. 1412) bile in duodenum, as result of digestion.~~ 44

~~*Liver and spleen* origin of blood~~

~~*Liver and spleen* seats of bile as [illegible]~~
~~Also *grahaṇī*, p. 72, l. 23 (Tr. 147) (see on Fire)~~ 35
~~See also p. 687, l. 3. *pitta-sthāna* = liver and spleen Comm. Ind., p. 104 (rise of pitta)~~
~~(from bile arises the heat of the body; from the heat comes the digestion (Tr. p. 194) — but when it is angry, it causes disease[2] of men[3]~~ p. 32
~~Comm. Ind. p. 266, l. 11. bile is mentioned first, because of its producing fire the cause of the *sthiti* of the body.~~

~~p. 126, l. 15 (Tr. 258) *prāṇa* depends on blood.~~

Phlegm

~~p. 66, l. 22 is the seat of Soma, watery element (ślesmāntarspati)~~

~~p. 5, l. 19.20 (Tr. 6) qualities of ślesma: heavy, cold, etc.; also p. 113, l. 18 (Tr. 230); cf. p. 145, l. 9.14 (madhura = snigdha)~~

~~p. 100, l. 13.14. (Tr. 199.200) when prakṛti it is strength and ojas; but~~
~~when abnormal it is mala and "hurtful" pāpma for the body.~~ 32

~~p. 105, l. 18.19 (Tr. 210) function of phlegm in natural state: snigdha greasing, strengthening (bala); see also p. 113, l. 18. 20. sneha (Tr. 230); and p. 193, l. 11 sneha~~

~~p. 110, l. 11.12 (Tr 22) list of diseases caused by abnormal phlegm~~ 57

~~p. 72, l. 25 (Tr. 147) sublimation (prakṣālaya) of ojas = phlegm (see pali, p. 1)~~

~~p. 655, l. 16 Tr. 1412 v. 7 . phlegm in stomach as result of digestion.~~ 44

Wind

~~p. 100, l. 15. (Tr. 200). Vāta causes all actions in men, it~~
~~causes disease (when abnormal), and prevents them (when~~
~~normal.~~

~~p. 105, l. 14.15 Tr. 210 functions of wind in natural state.~~

~~p. 110, l. 7-9 (Tr. 221) list of disease caused by abnormal phlegm~~ 34.

~~(Tr 1478) p. 687, l. 21 māruta entering prāṇavāhā, causes asthma and coughs~~ X

~~p. 85, l. 13 (Tr. 134) . prāṇa when abnormal cause disease.~~

Fire, Digestion, Heat

(Tr. 932)
~~p. 203, l. 11. Āmāśaya is ūṣmaṇaḥ sthāna, but see Comm. Sū. 19, l. 10.16, grahaṇī; duodenum, small intestines are the proper adhiṣṭhāna of agni, so Caraka and Suśruta.~~

~~p. 265, l. 14.15.16, by wind, bile, phlegm overcome (abhibhūta), too much of the 3 in the adhiṣṭhāna of fire~~

~~p. 66, l. 16 (Tr. 136) It is in bile (pittāntargata), and causes good or evil ac. as it is normal or abnormal.~~

~~Comm. Sū. 266, l. 11 fire is the helper of the sthiti of the body~~

~~p. 456, l. 23 (Tr. 1114) called pakti~~

(Tr. 389)
~~p. 182, l. 26. Life depends on fire, p. 55, l. 4 (Tr. 144)~~

~~p. 128, l. 4 (Tr. 260) Importance of keeping up fire after bloodletting.~~

Place of Fire

~~see p. 72, l. 23.24 (Tr. 147) "whose grahaṇī is overfull with bile, and (consequently) his digestive fire overstrong";~~

(19) The nature of ojas and its exact relation to the seven ~~[illegible]~~ body building tissues (dhatus) is rather obscure. ~~It~~ It is enumerated with the latter, though not always in the same place; it comes after the 7th (semen) in p. 184, l. 12 in the ~~same~~ list of nutrient parts (prasāda); but it stands before semen in p. 145, l. 10 (Tr. 309), in connexion with the sweet (madhura) Taste, which is oily (snigdha) cold (śīta) and heavy (guru) [145, l. 14], and which generates phlegmatic (Kapha-ja) diseases [145, l. 19.20]; again it is omitted in p. 147, l. 11 (Tr. 313, in connection with bitter (tikta) Taste, also in p. 186, l. 26 and p. 187, l. 17 (Tr. 398-9) in list of diseases due to the 7 dhatus (rasa-śukra) ~~etc~~ when disordered by 3 humours.

(1) It stands in some close connection with the dhatus, for it is often listed with them, ~~there~~ at their end, though not always in quite the same place, thus

after

before ——— sweet taste generates phlegm (p. 239, l. 3. Tr. 447)

← so is phlegm (Tr. 230 p. 113, l. 18) oiliness whiteness, coldness, heaviness.

N.B. Man & woman desiring to generate to be fed with sneha and sweet things (milk ghee) p. 354, l. 23, 355, l. 1 (Tr. 813)

omitted

NB. This would seem to show that ojas is not affected by the 3 humours

(2) It stands in a particular close relation to rasa chyle;

~~(a) for like rasa it runs in 10 dhamanis (p. 192, l. 19, p. 193, l. 5.13 [Tr. 411-2]~~
~~like rasa p. 260, l. 18)~~

~~(b) like rasa it resides in hṛdaya (p. 193, l. 2.3, and p. 260, l. 18); also p. 226, l. 4.5 (Tr. 982) where said to be the rasa which stays in the heart.)~~
~~and where in Comm. [illegible] p. 83, l. 11 identified with ojas)~~

~~(c) like rasa it pervades the whole body (p. 193, l. 5 and p. 247, l. 16.)~~

~~(d) like rasa, its kṣaya causes trouble in soul (śoka) and body (disease, phthisis) cf. p. 226, l. 2.5. (Tr. 983) with p. 96, l. 5.6 (Tr. 192)~~

causes meha p. 499, l. 16-22 (Tr. 1196-7)

~~(e) like rasa it can suffer attenuation (kṣaya) cf. p. 96, l. 3.24 (Tr. 192-3) with p. 96, l. 5.6.~~

(f) like rasa, its loss causes trouble and even death; cf. p. 96, l. 23.25 (Tr. 193); p. 192, l. 25 (Tr. 412) with p. 193, l. 7 Also Comm. 260, l. 10, and p.

~~(3) Ojas has no special vaha; for none mentioned in the list on p. 260, l. 2 (Tr. 503); yet vahas of ojas are mentioned on p. 193, l. 5 (Tr. 412), and ojas is conveyed to the embryo through the vahas of chyle (rasa) p. 335, l. 18.19 (Tr. 749) it follows that the rasa-vahas and ojo-vahas are identical. This also follows from the fact that both ~~[illegible]~~ rasa and ojas are conducted by 10 dhamanis over whole body (p. 193, l. 5, with p. 260, l. 22 and p. 186, l. 5-9 where chyle-produced (rasaja) diseases are listed in the whole body)~~

~~and in Comm. 508, l. 20 it is stated expressly that its conduits are the dhamanis which issue from the heart.~~

~~name derived from~~ connected with the word *dhmāna*, blowing, inflating.
(Car. p. 193, l. 5. 13 (Tr. 413), ~~p. 509~~ Comm. Su. ~~p. 5~~, l. 14. 18, and p. ~~5~~ 511, l. 1–3.

(4, Relation of ojas to garbha

~~It is the chief agent~~ (*sāra*) at the beginning ādau of the (formation of) the embryo;, and it is also that which is the "operative element" (*rasa* = *prasāda*) from among the operative rasāt elements of the (formed) embryo, being that which enters the *hṛdaya* as it begins (*pūrva*) to exist. See p. 193, l. 8. 9. (Tr. 412) (See p. 42)

see p. 96, l. 26 where after v. 71 a verse is omitted, given in the other ed. p. 260, v. 61; which verse says that *ojas* is the first to appear (*jāyate*) in the body of the embodied ones.

The chyle is one of the sources of the embryo (~~not~~ *rasaja*) p. 328, l. 10–17 Tr. 725

Ojas which is supplied to the embryo by the chyle-bearing ducts (*rasa-vāhinī*) ~~is underneath~~ via the navel-cord, is moved alternately by the mother and embryo in the 8th month (p. 335, l. 18. 19 Tr. 749).

This shows that *ojas* comes and goes in coming to embryo by the *rasa* ducts.

Ojas seems to be identified with *vīja* in p. 332, ~~and p. 330~~ l. 13 ff (Tr. 738 ~~ff~~). For like *ojas*, *vījas* starts the nascent life of the embryo. It collects from all parts of the body into the testicles (where it becomes semen and) whence it is ejected on to the womb. Similarly in the woman her *vīja* collects from all parts of her body into the womb where it becomes her menstrual blood, into which the male ~~semen~~ is propelled (~~See~~ p. 330, l. 23 Tr. 723, and p. 336, l. 13. 15. Tr. 752)

~~This would seem to show that~~ *ojas* is concentrated extract, or quintessence of all the *dhātus*, from *rasa* to *semen*. (*paraṃ sarva dhātvātmā*, p. 332, l. 15).

Or: It is the quintessence of *rasa*, as present at the back of all the seven *dhātus*.

Hence *oja*, thought by some, a kind of ~~*śukra*~~ semen, p
Comm. 509, l. 3 (*śukra-viśeṣa*), by others a product of semen (*śukra-paryāya*) Com. 484, l. 17, and 8th *dhātu*.

(5, Ojas is the quintessence (*sāra*) of the 7 *dhātus*, Comm. Su. p. 210 l. 9. (p. 266, l. 13,) p. 260, l. 11) p. 508, l. 25 509, l. 4. p. 484, l. 16, or the concentrated power (*tejas*) of them Comm. 484, l. 18. 19, or the sum total (*samudāya*) of them, Comm. Su. p. 260, l. 11; or the *rasa* the operative principle, the useful part of the body (*śarīra-rasa*, p. 193, l. 4 (Tr. 412)), i.e. the same as *sāra*, Comm. p. 510, l. 10.

(Suśruta's view Comm. 260, l. 12, p. 484, l. 18.

NB being the concentrated essence of the *dhātus* its total quantity is small, in fact, the same as that of semen (½ *añjali*), p. 353, l. 21 (Tr. 809)

Ojas is *rasa*, Comm. Su. 508, l. 24

~~(6) Ojas is the ultimate or essential basis of life, see Comm. p. 484, ll. 16.17 (prāṇāyatana Koṣṭha)~~
It is the foundation of prāṇa = life, p. 193, l. 11 (Tr. 412)
It is the 9th of the 10 āyatana of prāṇa, p. 352, l. 12 (Tr. 806)
and p. 189, l. 13.14 (Tr. 402).

~~And death of Ojas causes death of life & body) p. 193, l. 7.10.~~
p. 96, l. 26. Comm. 260, l. 10 and p. 508, l. 22

note for prāṇa

but note that phlegm has a diff. measure 5 (6 añjali) from ojas (½) p. 353, l. 16 (Tr. 809)

~~(7) Ojas seems identical with phlegm, mucous or lymph.~~
~~See p. 100, l. 13.~~
~~It is only the vitiated phlegm (vikṛta) which is called~~
~~mala. When normal it is bala, hence prasāda, and~~
~~ojas also is called bala (cf. p. 95, l. 3), as shown by the whole~~
~~tenour of Sū. XXX, hence ojas is called ślaiṣmika in~~
~~p. 353, l. 21 (Tr. 809) Comm. 266, l. 14.~~

N.B. phlegm (mucous) is the waste (mala) part of chyle (rasa), i.e. the
mucous membrane which lines all cavities of the body which
communicate with the outside. The inner lymph and blood
ducts are not made of mucous, but serous membrane; but
the Indian made no distinction between serous and
mucous fluids.

~~Phlegm (normal) gives sneha and bala to the body p. 105, l. 18 (Tr. 210). so also ojas is said to be the sneha of the body p. 193, l. 11~~
~~Phlegm is oily (snigdha), mild (manda), sweet (madhura), p. 240, l. 2 (Tr. 450)~~ and its characteristics are oiliness (sneha) p. 113, l. 18 (Tr. 230)
~~p. 113, l. 18 (Tr. 230)~~
~~p. 294, l. 24 (Tr. 594)~~

~~(8) Ojas is a clear or pure substance in hṛd (p. 96, l. 25~~
~~(Tr. 193) which the Comm. p. 260, l. 2.3 explains as~~
~~śukla, white; its appearance is yellowish and reddish.~~

This would agree with phlegm = lymph.

(9) See on ojas-eating fiend p. 321, l. 13 (Tr. 699)
~~(10) Soma is prasāda [illegible] p. 340, l. 20 (Tr. 766)~~

Explanation of Commentary

p. 260, l. 1.2. Ojas is difficult to understand (durjñeyatva)

p. 508, l. 15: there are 2 kinds of ojas: (1) para best (śreṣṭha) and — so also p. 260, l. 9.
(2) apara next best.

There are also 2 measures: (1) of 8 drops, small quantity, according to some, expressed by īṣat in p. 96, l. 25. Comm. p. 260, l. 6
(2) of ½ añjali, large quantity

Now No. 1 para = No 1. 8 drops, prāṇāśraya, life-holder, in hṛd; the smallest loss kills; so also Comm. 260, l. 6
No. 2 apara = No 2, ½ añjali, small loss does not kill, as in prameha, hence loss is symptom of No. 2. apradhāna as in p. 260, l. 6. so also p. 260, l. 9.10.
not in hṛd, but in the dhamanī which run from hṛd Comm. p. 508, l. 20.

~~p. 509, l. 1) Some call oja an upadhātu (or bye-dhātu); not the 8th dhātu; for dhātu is the nourisher (poṣaṇa, poṣaka) (the function of a) but ojas~~
~~is upholder (dhāraṇa, dhāraka) of body.~~
l. 3 Again some call it a kind of semen (śukra-viśeṣa), but that is not satisfactory
l. 4. ~~Again some call it the quintessence of all dhātu (rasādi-sāra), which implies that ojas is not a dhātu, but an upadhātu,~~
~~that is the concentrated essence (sāra) of all dhātu, just as honey is concentrated (saṃcita) from fruit and flower, so is ojas from~~
~~the essence (sāra-bhāga) of all dhātu.~~

Nerves

(20) In connection with the seven transformations of the food-juice into seven bodily fluids transformations (dhātu) and their quintessence (ojas), ~~there occurs the mention of a~~ which are said to be effected by the process of digestion, there occurs the mention of yet another product of that process which, so far as I am aware, is the only indication of the recognition by the ancient Ind. Anatomists of the existence of a nervous system. ~~By some eastern Indian medical writers, several of the tube system networks of tubes of which Indian Anc. Ind. Anatomy speaks,~~ Attempts have been made occasionally by some modern Indian medical writers to interpret certain ~~passages~~ words occurring in Caraka as explaining a direct reference ~~referring indications of a knowledge~~ ~~[illegible]~~ to nerves. But these are misunderstandings, prompted apparently by a misguided ~~[illegible]~~ patriotic ~~in~~ endeavour to vindicate for the authors of their ancient ~~medical~~ textbooks a knowledge of the nervous system.* (~~See further line on the vascular system~~). This obviously, there is agreement with the master-idea of the ancient Indian humoral physiology, if nerves were recognised at all, they would be conceived as a "nervous fluid", ~~probably~~ ~~so~~ spread from a centre over the whole body, in a network of nerve-ducts, just like the other dhātu (chyle, blood etc.). But in a chapter of Vimāna ~~dealing~~ ~~and~~ with the whole field of ~~these~~ channels and ducts of the body (see infra [illegible]), there is no mention or allusion to ~~a nerve~~ any nerve-carrying ducts. Nor is there the faintest ~~allusion~~ mention of any nerves in connection where ~~the mind, its sensation and activities are discussed~~ one would naturally expect it. In ~~discussing~~ this more or less detailed discussion of ~~the mind, and its~~ sensations and activities, the ancient writers give no indication of the existence of any [illegible] of the ~~[illegible]~~ of sensory or motor nerves as mediating agents.

added to text p. 380. 563 (note)

snāyu = nerves Tr. 195 (Av. 98, l. 4)

sirā = nerves Tr. 144 (Av. 71, l. 5), Tr. 186 (sirā-jāla, Av. 92, l. 23)

On sensations Tr. p. 84–86 ff. p. 124

On motions of mind (ceṣṭā) see Tr. p. 84–86

Yet there is one passage in Caraka — and only one so far as I am aware, ~~which does~~ and one moreover not hitherto recognised — which does seem to give a vague and faint indication of the recognition of nerves.

* Car. ~~p. 144~~ p. 71, l. 5; p. 92, l. 23 (sirā), Tr. p. 144, 186; also p. 98, l. 4 (snāyu), p. 195. See also Tr. p. 380 where nerves are introduced into the transl. of a passage, Av. p. 178, l. 15, where there is nothing corresponding to it.

N.B. See Transl. p. 1784, note * where "nerve force" identified with vāta.
This may be true so far as "motory nerves" are concerned, p. 772, l. 16 (Tr. 1784), and "the sensory nerves", p. 65, l. 4.6.

supplies nutriment, and removes waste. These two ends are attained by a circulating fluid, which constantly flows past every cell of the body. This circulating medium is the blood. Moreover blood carries many elimination products which are taken to other tissues cells to build them up (rakta-māṁsa etc).

In performance of these functions depends upon a circulatory mechanism, a central pump, and system of ramifying tubes, through which blood is carried from and returned to the heart.

Liver

In upper and right part of abdominal cavity (Eng. Anat) below diaphram.

Kidney

Two bean-shaped masses, placed obliquely behind the other abdominal viscera, one on each side of the last thoracic and three upper lumbar vertebrae. Around them a considerable amount of fat, by which they are retained in their place (Eng. Anat)

Spleen

In dorsal part of Epigastric and left hypochondriac region higher up regions behind the stomach on left side of abdomen, corresponding to 10th 11th rib, from which separated by diaphragm,

Section I. The Track (mahāsrotas Skt m. canal)

1, Mouth (mukha, āsya) and Gullet (Kloma).

It serves to break up (masticate / chew) into minute parts, and to form into viscous fluid with saliva (udaka).

Indicated by 4 terms (kāḍana, āsana, pāna, lehana / teeth / tongue)

The food thus prepared is chyme (āhāra-rasa)

As such it passes through gullet into stomach

2, Kukṣi stomach where further prepared, as rasa chyle

Anat. Chitra

3, Intestines (āmāśaya), ~~smaller~~ or grahaṇī (pakvāśaya)

Here digestion (vipāka) takes place.

Alimentary, Abdominal, Digestive

4, Liver (yakṛt) and spleen (plihan), where rasa or chyle transformed into blood.

N.B. Spleen is wrong. Moreover liver and spleen are no real part of Alimentary canal, & rasa does not really pass through them.

5, Bladder (vasti) / Rectum

Scheme of Lecture.

Physiology of Nutrition

"Nutrition" is "the way in which the great masses (Rasa) of the body obtain the material (rasa) for growth and repair, and the energy for mechanical work and heat production, and the mode in which they get rid of the waste products (mala, kitta) of their activity. Briefly "the history of the food (āhāra) of the body, since it is in the food that the necessary matter and energy are supplied."

(2) The essential step which prepares food for utilization in the body, for the change into living matter, is digestion (pāka). By this process food is broken up into simpler substances which can be utilized (rasa). That part of the food which is not needed (mala) for use in the body is passed as faeces or urine

3, Mechanism of alimentary Canal

(a, mastication in mouth, chewing and mixing with saliva. Makes rasa foodjuice

faeces accumulate in rectum.

(b, The peculiar absorption of food takes place not in the mouth, but in Intestine, esp. small.

(c, food materials may reach blood direct, through capillaries spread on the villi, or their fatty parts go into the lacteals

(d, Metabolism. In all living matter a constant cycle of changes is going on; a constant breaking down (katabolism), and a corresponding constant building up (anabolism. These two changes making up the Metabolism. A third of this is a third of the fats of food.

Blood.

Natural cells (made in their nutriment (rasa), and expell its waste products (malas. Hence they must depend on some mechanism, which

Eng. Brit., p. 920, s.v. Nutrition

The Mechanism of Life-Forces or Nutrition

I The form of the Machine. The track, and its division, in which the process takes place. The Alimentary Canal

II the Matter (food), nourishment) which feeds or passes through it, and is transformed in it. The various phases of transformation

III the forces acting on the canal and the food within it; and the ways in which the acts. The humours.

(a, Vāta, which impels causes the food to pass

(b, Phlegma, which lubricates the canal.

(c, Pitta, which transformes (into blood) NB. Pitta transforms flesh etc.

Saliva is a colourless, slightly acid, viscous fluid (udaka)

It moistens the mouth and food

absorption of food ingestion.

See Encycl. Britt., p. 77. s.v. Blood

Outline of Physiological Theory. Continued

~~Both kinds of products, the nutritious as well as the waste, constitute the building material (dhatu) of the body. But they do so in two different ways. The nutritious parts go to build up the tissues of the bodies, hence they are called the building material (dhatu) in a special sense, and they number seven kinds. The waste parts, on the other hand go to make up the excrescences, secretions and excretions of the body, as well as the~~ ~~so called humours~~ ~~(dosa)~~.

The latter – the humours – are ~~the sublimated~~ ~~a sort of volatile~~ forms of the three gross elements ~~air~~ water, fire, and air which are ~~sublimated and~~ disengaged from the food in the course of its ~~sam~~ all digestion in the stomach and intestines. (Food contains ingredients which are sweet or bitter or pungent. From the sweet (madhura) ingredients is ~~sublimated~~ disengaged the sublimated form of water which is called phlegm (kapha, ślesman); from the bitter ingredients ~~a dis comes in the same way~~ is disengaged the sublimated form of fire (or heat) which is called bile (pitta); from the pungent ingredients come the subl. form of air, called ~~vata~~ wind (vāta). The sublimation of phlegm occurs in the stomach (āmāśaya), that of bile in the duodenum (grahaṇī), that of wind in the intestines proper (pakvāśaya)). These three kinds of waste-products (mala) of digestion are accounted such (because though they do not contribute to up-building of the tissues of the body, ~~but~~ they serve to regulate that process of upbuilding. So long as they preserve their proper proportion ~~[illegible]~~ in themselves as well as to one another, they tend to keep going that process in its proper order; but as soon as ~~they are~~ their proportion is thrown into disorder they tend to interfere with the proper working of that process of upbuilding or nutrition, and become the causes of disease. From this aspect of theirs, that they are potential causers of mischief, they are called the doṣa, or ~~humours~~ faults (i.e. humours) of the body. They are ~~something in~~ an external sublimated, ~~or~~ volatile, and spiritualised (as the old chemical name) form,

though they also form a part of the body, are not useful working members, but rather obstructions or hindrances (organic products) flatus-wind bile, and phlegm-mucus.

The humours

Central localities of them see p. 33

(The waste parts (mala) ~~are~~ are of two kinds: either ~~they~~ ~~or~~ such as remain ~~after and within~~ in connexion with the body in the ~~form of secretions, and some~~ or such as are ~~exp~~ removed from the body. To the former class belong (1) those products of digestion which go to form excrescences, or bye-bodies (upadhātu) as they are called such as nails… and 2, those which form secretions or secreted fluids and which are inert ~~[illegible]~~ for nutritive purposes, or in a resting condition (to be explained hereafter) only in a relative sense. When they are highly sublimated and volatilised, may become a source of mischief to the system or machinery of the body.

of these three gross elements; fluid or rather gaseous, hence their English name "humours". They pervade the whole body, and are not bound to any particular ducts of their own, but accompany the various body tissues as they pass through their respective ducts, which will be referred to presently.

Besides these three humours, which have a very important function ~~in the~~ to perform in the complicated machinery of the body, there are other products of digestion which are of much smaller utility, or of none at all. To the former class belong ~~the~~ such waste products (mala) as the excrescences and secretions of the body. Among the excrescences are counted such as hair of the head (kesa) or of the beard (smasru) or the body (loma), the nails etc. To the secretions belong, e.g., sweat (sveda) ceruminous (ear wax), tears (asru), salivary (kleda), sebaceous (meha), serous (lasikā), the semi-useless class of. The excretions are three, viz. flatus, which comes from the intestines (pakvāśaya), urine which comes from the bladder (vasti) and faeces which come from the anus (guda).

Note: ~~instead of 6 days~~ (2, not flesh, but flesh-juice. each transform. in own duct

(3, at each transformation, a division of good and waste.

(4, where the wastes collect.

~~(5, sebaceous milk~~

Acc. to ~~the first theory~~ both theories, from ~~the~~ the food juice (āhāra rasa) as it passes through the ~~[illegible]~~ intestinal canal, ~~a certain~~ its nutrient portion (rasa) separates off, ~~and is turned~~ in the form of chyle (rasa) which now runs ~~in its~~ own i.e. its own duct (dhamani), nourishing the various body tissues, while its waste portion is ~~excreted~~ [illegible] from the body through the anal and urinary ~~channels~~ passages, nostrils, mouth. According to the first theory, the stream of chyle as it runs along in its own duct a certain ~~nutrient~~ portion ~~separates~~ (prasāda), separates off into yet another duct, ~~and in which~~ ~~the course of six days, turns into blood (2 transf.) while~~ its nutrient part (prasāda) turns into blood (2 transf.) while its waste part is eliminated and forms phlegm (kapha, śleṣman), Next ~~after~~ from the stream of blood, running in its own ~~ducts~~, again a certain portion separates off into ~~and~~ a third duct, in which its nutrient part turns into flesh-material (3 transf.), while its waste part is eliminated and forms bile. Next from the stream ~~of bile~~ of flesh material, running in its own duct, certain portion separates off into a fourth duct, in which ~~then~~ its nutrient part turns into fat-material (4th transf.) which its waste part is eliminated and forms the internal secretions. Exactly in the same way the process ~~of transformation~~ proceeds, yielding in the 5th transformation, the nutrient bone-material and its waste ~~of external~~ ~~excrescences or "byproducts"~~ ~~secretion, such as sweat, in the 6th transf., the nutrient marrow~~ ~~and the waste~~ hair, nails etc.; in the 6th transf., the nutrient marrow, and the waste ~~sebaceous secretions (meha)~~ i.e. ~~oleaginous milk (sleṣma).~~

the external secretion, such as sweat (sveda). In the 6th transf., the nutrient marrow, and the waste excrescences or "byproducts" hair, nails etc.; Only ~~then~~ and not in the 7th transf., ~~the nutrient~~ ~~semen~~ the whole stream of marrow turns into semen, there being no waste.

The second theory ~~in~~ differs from the first only in one point, viz. that the several streams or chyles ~~do not~~ separate off consecutively from one another; but the first stream or duct of chyle is the common parent or source of all the other 6 streams or ducts, which separate off from the parent stream at different points. In all other respects the two theories agree.

Prāṇa – Life-breath.

– on their function (communal vyāna) see Com. Śar. p. 139

See [illegible] p. 5

p. 63, l. 24 (Tr. 132) "What sort of thing (kiṁguṇa) is Air (vāyu)?^{2}

As it enters into no combination (asaṁghātavān) (with any part of the body which contains bile or phlegm, Comm. p. 190, l. 8), and is unstable (anavasthita), and (hence) impervious to any influence (asādhya), how can be susceptible of any disturbance or pacification?^{2} And, whether or not in a disturbed state (kupitākupita), whether within or without the body (śarīrāśarīra), in what manner does it act within the body, ~~or~~ and without the body?^{2}

p. 64, l. 4: The six characteristics (guṇa) of air (vāta) are dryness (rūkṣa), lightness^{2} (laghu), coldness^{3} (śīta), ~~severity~~ stiffness hardness^{4} (dāruṇa), ~~hartfulness~~ shrunkenness^{5} (khara; suṣira, l. 18) and toxicity (viṣa-da). * Hence (l. 9) coming in contact with ~~similarly acti~~ things dravya of similar nature (in the body), air (vāta) becomes disturbed, and causes the excess (vṛddhi) of the constitutive elements (dhātu) of the body. (l. 15) It is thus that Air (vāta) may become a factor of disturbance ~~and~~ or pacification, according as it comes in contact with things dravya in the body which are of the same or opposite nature."

p. 65, l. 2 (Tr. 134): [As to the action (karman) of Air (vāyu) within the body (śarīreṣu)] it (i.e. Air (vāyu)) keeps going the whole machinery (tantra-yantra-dhara) of the body; it constitutes in the (~~five~~fivefold) form of breath^{1} (prāṇa), belch^{2} (udāna), borborygmus* (samāna, digestor), circulator (vyāna), flatus (apāna), the driving force ~~for~~ every kind of movement (ceṣṭā ⊛) within the body. (l. 5) It ~~is~~ thus causes all the constitutive elements (dhātu) of the body to move forward in orderly array (vyūha) (l. 7) it blows up (samīraṇa) the digestive fire (agni), it withers (śoṣaṇa) the (bile- and phlegm-) humours* (doṣa), it expels the waste-products (mala, flatus, urine, faeces), it keeps open (bhettā) all canals (srotas), whether large or small; it creates (kartā) all the factors of the foetus (garbha-kṛtin); ~~altoget~~ altogether it is the cause of the maintenance of life. It does all this while it is in its normal (aprakupita) state. But when it is disturbed (kupita), ~~it~~ in the body, it afflicts the body with a variety of diseases.

[Here follows an account of the action of Air, outside the body p. 65, l. 14.]

In relation to Air.

Resume: the gross element (mahābhūta) Air ~~gross ele~~ ~~as~~ as a material constituent of the body, appears in it in two forms (1) as a humour (vāta) causing diseases, due to unsuitable diet.

(2) as a breeze or blow (prāṇa) in fivefold form; viz. breath^{1}, belch^{2}, promoting^{3} passage of chyme and digestion in stomach; propelling^{4} the liquid tissues of the body within their ducts, expelling^{5} the waste-products. It acts as the driving force of the body-machine.

Air, as a gross element is vāyu
" as air-humour it is vāta (disease-cause)
" as "breeze" or "breath" it is prāṇa (driving-force)
} but these three aspects and terms are (perhaps?) not always kept distinct.

as such, prāṇa is a synonym of life, hence prāṇin, a living creature, and prāṇābhisara or succourer of life (or prāṇānām abhisāra; see p. 139, l. 16. 18. 24, p. 191, l. 11), a name for physician!

* N.B. opposites are: oily (snigdha), heavy (guru), hot (uṣṇa), soft (mṛdu), slimy (picchila), solidifying (ghanakara)

~~Note: on 5 prāṇas see Tr. p. 669, note~~
~~see also Text p. 535, l. 3. 4 (Tr. 1371)~~

* ~~See p. 75, l. 24 (Tr. 154) = āmāśaya-gata vāta; and p. 85, l. 5 called samādhmāna in kukṣi, in abdomen, or ādhmāna p. 639, l. 25 (Tr. 1335) p. 536, l. 6 (Tr. 1373)~~

⊛ See reverse page, infra.

* Comm. p. 193, l. 8, makes doṣa = kleda, glairy fluids of the body.

p. 100, l. 15, (Tr. p. 200) "All the activity (movement) (within the body) are due to Air (vāta), which (as such) is called the "Breeze" (prāṇa) of the "Breathing Creatures" (prāṇin). Through it (when disordered) diseases (roga) are generated, and through it (when normal) they (roga) are kept in check (nigṛhyate) (i.e. prevented from breaking out)

Cause of movement and disease

To this, see note on p. 32

p. 105, l. 12. 14. 15 (Tr. 210) "Permanent (elements) in the body (deha) of "Breathing Beings" (prāṇa-bhṛt) are the three (humours) Wind, Bile, Phlegm. The activity (karma) of Air (vāyu) (in the form of "Breeze" or prāṇa), the resultant of its being in an undisturbed state (avikāra-ja) consists in energy, inspiration and expiration, activity (ceṣṭā) (of any kind), regular (sama) flow of the (liquid) tissues (dhātu), regular (samya) evacuation (mokṣa) of the waste-products (malāti, "what has to go out").

Functions of Air as prāṇa (see p. 33) also p. 46, verse 33

p. 110, l. 7. 8, (Tr. p. 221) "The localities (sthāna-vibhāga) of the three humours (doṣa) in the body are the following: — The loci (sthāna) of Wind (vāta) are these: (1) Bladder (vasti)

(2) Rectum (purīṣādhāna)

(3) Loins (i.e. lower abdomen, Kaṭi)

(4) two lower extremities (sakthinī) (dual)

(5) two feet (pādau, dual)

(6) the Bones, Skeleton.

But the chief place (viśeṣeṇa) of the Wind is the Intestines (pakvāśaya, same as No. 3 above), ... (l. 18) The diseases due to (disordered) Wind are 80 in number.

Localities and Diseases of Air as humour (vāta)

N.B. As the Comm. (p. 289, l. 6) points out, these are the loci of air in its aspect of Humour, but not of Breeze (prāṇa).

p. 91, l. 19. (Tr. p. 185) "There are five kinds of diseases of the head (śiro-roga)" [from the causes noted] (p. 92, l. 5) Wind and the other humours (vātādi) become disarranged, and the blood (asṛg) of the head is vitiated. The "breaths" (prāṇāḥ pl.) (that in which) of the "Breathing creatures" (prāṇa-bhṛt) are; which is the best limb (uttamāṅga)

Locality of Air as Prāṇa.

p. 193, l. 11. (Tr. 412) "The Ojas is that on which the life-breaths (prāṇāḥ pl.) are established"

Ojas the sine qua non condition of life-breath.

N.B. here prāṇāḥ plur. synonym of "life", as in p. 189, l. 13 above.

p. 655, l. 4 (Tr. 1411) "Vital force (ojas), energy (tejas) and digestive warmth (agni), and the life-breaths (prāṇāḥ pl.) have the body-warmth (dehāgni) for their cause.

p. 352, l. 11-13 (Tr. p. 806) There are 10 areas of prāṇa, which are enumerated, and the 7th among which is ojas

Ayatana or Areas of Prāṇa

p. 657, l. 17. Vyāna diffuses chyle through body.

p. 658, l. 11. Samāna blows up digestive fire.

p. 655, l. 9 Prāṇa propels food. p. 347, l. 4

p. 314, l. 6 prāṇa and apāna mentioned also p. 327, l. 21 (Tr. 723)

p. 187, l. 24; 188. l. 2 malas impelled [illegible] into their respective śākhā, see also Tr. p. 369, 2 ed.

On Wind, see chapter XII, Tr. p. 132 also text p. 182, l. 26, Tr. p. 369

Comm. Vim. p. 59, l. 9. all Dhamanī are the vāha of air or prāṇa

Vāha or ducts of air or prāṇa or humors

p. 639, l. 24 (Tr. 1334, 1335) Prāṇa and Apāna.

p. 649, l. 3. 4 or Udāna

apāna irritates (kupyati) on pakvāśaya, p. 742, l. 19 (Tr. 1716)

among the limbs, that is called the "Head" (śiras)*

* This includes the neck (gala), see p.92, l.9 (Tr.185)

p.189, l.13, (Tr.p.402) "They say that there are ten areas (in the body) in which the life-breaths (prāṇāḥ pl) are established: -

1, Two temples (śaṅkhau)
2, Three Vital parts (marma) [viz.a, pelvis (vasti)
6, thorax (hṛdaya)
c, head (śiras)
3, throat (kaṇṭha)
4, blood (rakta)
5, semen (śukra)
6, lymph (ojas)
7, anus (guda)

He who knows these is said to be savant familiar with the "breaths".

Local List of Śiras as Prāṇa

prāṇāyatane (also p.191, l.5)

pBi, l.15. (Tr.p.127)

Note: There is a parallel passage, which enumerates the various parts of the body open to attack by disease (roga-mārga):

1. Extremities (śākhā) (lower and upper), and skin (tvac)
2, Vitals (marma) viz (a) pelvis (vasti)
b, thorax (hṛdaya)
c, head (mūrdhan)
d, skeleton (asthi-sandhaya
3, Abdomen (koṣṭha) i.e. āmāśaya and pakvāśaya.
4, blood (rāktādayaḥ)

Now both lists obviously are meant to comprise the whole body, in which there is "life" (prāṇa) and which is open to disease (roga). As a matter of fact, in second neither list does which refers to the diseases does include the whole body, though the existing text is imperfect and misplaces the items. The true text can be easily restored. It should run thus: śākhā marmâsthisandhayaḥ koṣṭhaś ca || tatra śākhās tvak ca bāhyo roga-mārgaḥ || marmāṇi punar vasti-hṛdaya-mūrdhva-raktādīni || asthi-sandhayo 'sthi-saṃyogās tatr=âpanibaddhāś ca snāyu-kaṇḍarā madhyamo roga-mārgaḥ || Koṣṭhaḥ punar ucyate mahāsrotaḥ śarīra-madhyaṃ mahānimnam āma-pakvâśayaś c=êti paryaya-śabdaiḥ tantre, sa roga-mārga ābhyantaraḥ ||

According to this list, the whole body is thus divided. The areas open to attack by disease are: -

I, (a) Extremities (śākhā, upper and lower) } being the external area (bāhya mārga)
(b) Skin (tvac) }

II, (a) Vital parts (marman), viz (α) pelvis (vasti)* } being the middle area (madhyama mārga)
(β) Thorax (hṛdaya)
(γ) Head (mūrdhan)*
(δ) Net-work of dhātu-ducts (blood, etc.)
(b) Bones with their joints (asthi-sandhayaḥ)

III. Abdomen (Koṣṭha) with stomach (āmāśaya) and Intestines (pakvāśaya), being the interior area (ābhyantara mārga)

* vasti is pelvis (not bladder) so also in p.90, l.12; cf. p.99, l.2 where it includes urine and faeces

* Here = śiras, see p.61, l.26 (śiro-hṛd-vastī)

In the existing text the "network of ducts" (raktādayaḥ) is misplaced. The difficulty misplacement had been recognised by the Comm. (p.185-6), though he tried to escape it by an unsatisfactory argument. If the restoration is made, all difficulty disappears; the list not only covers the total body, but exactly suits the idea of the passage. That idea is to compare the body to a town which is open to an attack by an enemy. The latter will attack first, the suburbs (śākhā) and the enceinte (skin); next it will attack the town itself, i.e., its several quarters (vasti-hṛdaya-

mūrdhan) and network of streets (raktādi); finally he will attack the castle in the centre (Koṣṭha). The comm. misled by the misplacement of raktādi, tries to explain the passage by the simile of a tree, the śākhā and raktādi he takes to refer to the branches of the tree, tvac to its bark. But the simile is forced, and cannot be carried through the whole list. (not in medical, but in popular terminology (vyavahārārtha))

For the first list, seem to be an obvious duplicate of the second list, though apparently slightly modified. The Text is clearly very corrupt, for it practically duplicates some of its own items; for its No. 3, throat (Kaṇṭha) is implied in its No. 2b thorax, and its No. 7, anus is implied in its No. 2a pubes, so also its No. 1 temples is included in its No. 2c, head. It suggests itself at once that its No. 1, śaṅkhau, two temples, is a false reading for śākhe two extremities (i.e. upper and lower), and its No. 3, kaṇṭha throat, a false reading for koṣṭha abdomen. Its No. 2 abc is identical with No. 2 a b c of the other list; and its Nos. 4, 5, 6 are a mere expansion of No. 4, raktādi. There remains No. 7, guda anus, it is clearly a false reading, and must somehow take the place of No. 2 d asthi-sandhayaḥ of the other list. On this basis the following restoration of the existing śloka may be suggested: śākhe [illegible] marmatrayāsthini koṣṭhaṃ raktāsṛkrojasī ‖ [illegible] In the second pāda the metathesis rakta-śukrojasī koṣṭhaḥ would suit the simile better, but would be defective in scanning.* A further difficulty, which however, affects both versions of the list, is the omission of chyle-rasa, for which there is no apparent reason, except that there may be a confusion of ojas with rasa. But ordinarily one would expect the reading rasāde for raktādi. The comm. also felt this difficulty, and gives a very forced explanation the insufficiency of which he admits himself.

(p. 61, l. 15 ff. Tr. 127) The parallel passage runs as follows:

"There are three approaches (mārga) for a disease (roga): the Extremities (śākhā), the Vital parts (marma) and the bones with their joints (asthi-sandhayaḥ), and the abdomen (Koṣṭha). Here the extremities (śakhā), the blood and other tissues (raktādayo dhātavaḥ) and the skin are the external (bāhya) approach for disease. Again the Vitals, that is the pubes (vasti), thorax (hṛdaya), the head (mūrdhan) etc.; the "bones with their joints" that is the connections (saṃyoga) of the bones as well as to the attached tendons (snāyu) and ligament (kaṇḍarā), are the middle approaches for disease. The abdomen, again, as described in Medical Textbooks as the great Canal (mahāsrotas), that is the middle of the body (śarīra-madhya), the great cavity (mahānimna), the receptacle for half digested and fully digested food (āma-pakvāśaya); that is the internal approach for disease."

Comm. p. 289, l. 7. quotes a verse from (?): "the bases of "Breath" (prāṇa) is the head (śiras), thorax (uras), throat (Kaṇṭha), tongue (jihvā), mouth (āsya), ear (karṇa), nose (nāsikā).

Locality of Prāṇa = Breath.

* However the real misplacement may be that raktādayo dhātavaḥ should come with koṣṭhaḥ. For the comm. (p. 186, l. 6) quotes a verse from some (vivaraṇa) description of koṣṭha, according to which āmapakvāśaya, mūtra, rudhira etc belong to koṣṭha.

* vastiḥ śiśne

* Comm. p. 186, l. 8, = sthūla-snāyu, ligament = Tib. 458, adds sirā ducts. su. śiv. text p. 187, l. 3.

Trunk, called antarā-śrī, viscera-holder, Comm. 526, l. 3.
Viscera = antarāśrayāḥ, p. 600, l. 1 (Tr. 1700)

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Its Cavities Walls and Viscera

The Trunk, Koṣṭha.

Śārīra-sthāna, p. 352, ll. 14-17. Transl. p. 806

It contains 15 parts (aṅga): viz.

Chest
- 1, Nābhi, navel, the central point of trunk-box.
- 2, Hṛdaya, name of a, chest, (upper portion of trunk thoracic cavity)
  - b, heart,
- 3, Kloma, external organs of the throat (larynx, trachea, gullet.)

4, Yakṛt, liver
5, Plīhan, spleen } sources of blood, see p. 10. Text 208, l. 2

6, two vṛkka, 2 kidneys
7, vastī, bladder ("pelvis" in p. 61, l. 17, see p. 30 98, l. 12, p. 99, l. 4)
8, [purīṣ-]ādhāra, stomach
9, āmāśaya, upper abdominal cavity
10, Pakvāśaya, lower abdominal cavity
11, Uttara-guda, upper anal (track) canal, or rectum
12, adhara-guda lower do, or anal canal
13, Kṣudr-āntra, small intestines (in No. 9)
14, sthūl-āntra large do (in No. 10)
15, Vapā-vahana, great omentum.

Explanatory Notes:

Ad 1. Nābhi, the conspicuous mark of the trunk; important as place of attachment of navel chord of foetus. See p. 348, l. 15. Hṛdaya see Thorax. Bhedakāśyapa's view: Nābhi, being the portal of aliment (āhārāyana), comes into existence first. It represents the alimentary canal in the foetal state of man. (Transl. p. 798) The navel chord is the foetal alimentary canal. Its name is Amarā, it is nāḍy-ayana, a tubular passage. It is connected with the navel of the foetus (p. 349, l. 3, nābhyām asya nāḍī prasaktā), and with the "heart" of the mother (p. 349, l. 4, amarā c-āsya mātuḥ prasaktā hṛdaye). Through it, the foetus draws its nourishment from the "heart" of the mother (p. 349, l. 4-5. mātṛ-hṛdayāṃ asya tāṃ amarāṃ abhisaṃplavate śirābhiḥ syandamānābhiḥ, the "heart" of the mother drenches that amarā of his by means of its full-flowing ducts.

The "heart" would seem here to refer to the mother's (lower) abdomen, because the navel chord connects with the placenta in the womb. But hṛdaya never signifies the pakvāśaya. The idea really seems to be, that the navel chords connects the foetus with the "heart" proper, from which the 10 dhamanī or śirā (not the plural) issue, which carry the alimentary to every part of the body), and hence to the womb, and through it to the foetus.

Notes:

The whole scheme is not conceived very logically: there some names (e.g. No. 2 hṛdaya, have two significations. also some parts or organs have two names, from different points of view, e.g. Nos. 8, 9, 10 & Nos. 13. 14. Thus No. 9 consists for No. 8 and No. 10 is locality for Nos. 13. 14.

K.K. On two-fold division Thorax-Abdomen, see Gerrit p. 732

N.B. In p. 61, l. 15-19, koṣṭha is abdomen, as distinguished from pelvis (vasti) below, and thorax (hṛdaya) above it. (p. 30)

No. 9. Āmāśaya = stomach, text p. 398, l. 3 (Transl. p. 909) Here it (a cavity) signifies the locality, which contains the viscus stomach (No. 8 ādhāra)

Illustrations:

1, Diagram of Trunk, front view } showing divisions: chest,
2, do do back view } upper abd., lower abd., navel.
Also showing viscera in dotted lines.

Note to No. 2. Hṛdaya See p. 23

It has two meanings: 1, chest, uras. 2, heart proper.

1, Passages where it means chest.

Probably p. 349, l. 5, navel connects with mother's heart (see obverse).

p. 344, l. 22. Obstruction in chest (see p. 12)

p. 352, l. 14, as part of ~~back~~ trunk.

In hṛd-roga diseases of chest (phthisis, pulmonary) (see Sūtra xvii, Transl. 189, 196-7, 198, 215 952 (etc. on granthi, vidradhi etc.) See p. 5. Also p. 93, l. 25, see p. 35

p. 98, l. 11 ~~and p. 99, l. 1~~. hṛdaya is mentioned ~~by the side of kloma~~ as seat of vidradhi (phthisis) diseases, and p. 99, l. 1, "cough" is a symptom.

p. 61, l. 17 and 26, where by side of vasti = pelvis, and mūrdhan = head (p. 30)

p. 93, l. 18, râle in chest (hṛdi) see p. 35

p. 122, l. 13, hṛdayōdgara, eructations from chest. (Tr. 248 wrong)

"Chest." in Comm. Vim. p. 60: hṛdaya-stha pipāsā-sthāna with ref. to kloma lungs, which are located in the chest (not heart) (see p. 27)

2/ Passage, where it apparently means Epigastric, upper abdomen, or āmāśaya, Text p. 211, l. 8 in Nidāna (Transl. p. 952) See p. 10

3, Passages where it means "heart" proper, are those ref. to ojas as its sthāna, and to navel chord (see obv. note), and to parts of trunk (for otherwise "heart" proper would be omitted in list, which is not probable, considering the size of the organ.

Passages: p. 226, l. 5, seat of ojas (see p. 8)

p. 298, l. 8 where measure is given.

p. 98, l. 11, 99, l. 1, mentioned by side of kloma.

(4) Its size: real 5 × 3½ × 2½ inch., weight 8-12.

Text p. 298, l. 8 only 2 aṅgula, must be wrong (see p. 27)

Note re No. 3 Kloma (see p. 16 27)

Tr translations has: 1) "the pest that joins the throat with the thorax, p. 196, 197. (ref. to vidradhi in Lungs!).

2) Lungs, p. 806 and note 4

3) bladder, p. 504, and note on p. 196

The text counts it as an kdaka-vahana "water-carrier", p. 260, l. 11 (transl. p. 504 has "Kadder."); vers comm. (p. 60) explains it as hrdaya-stha pipāsā-sthāna "place of thirst located in the chest", which suggests "back of throat" or gullet.

There is a similar reference to pipāsā in text p. 99, l. 1 (Transl. p. 197) where in case of vidradhi arising in Kloma there is thirst, dryness of mouth, and obstruction of throat (vidradhyāṁ klomajāyāṁ pipāsā mukhaśoṣa-galaprahāḥ); all symptoms of laryngitis (see Throat diseases: laryngitis with ulceration, cancerous affections in gullet. Black)

All this points to Gullet rather than lungs. Kloma being the internal organs of the throat (kaṇṭha).

So also text p. 98, l. 11 (Transl. p. 196) refers to disease granthi in Kloman of the wide of hrd; if latter be phthisis in Chest, then hrd = lungs, and larynx ~~Kloman something else~~ and its disease laryngitis. (see p. 36)

Are there any passages decisive of "lungs"?

Points to notice

No knowledge of diaphragm
of lungs
of arteries, lymphatics } (unless = oja)
of nerves

Note to No. 6, Vṛkka. See p. 16, 22

It is always in the plur. dual (vṛkkau) showing that it is a duplicate organ.

Frankfurter "2 divisions of heart" (p. 388)

Text p. 260, l. 20 says that vṛkkau are the mūla source, of the medo-vaha, fat-carriers.

p. 98, l. 4, and 99 p. 3, mentioned as seat of vātaja diseases.

Theory of Nutrition, its Track and Stages

(See Chapter V on srotas in Vimāna, p. 259, Transl. p. 502)

It takes place in the Alimentary canal, which begins with the mouth and ends with the anus. Through it the food (āhāra), which is taken, takes its track. The resultant of it is the body (deha, śarīra).

The driving force, which propels the food (āhāra) through the canal, is air in the form of prāṇa, which in the upper portion of the canal, in the chest (hṛdaya or uras), (down to stomach) is called breath (prāṇa), in the lower portion, from stomach downwards, is called the Great Canal (p. 67, l. 19 mahāsrotas).x

Food (āhāra) is ~~masticated, or chewed~~ treated, in the mouth, in four ways either by crushing (khādita) or chewing (aśana), or drinking (pāna) or licking (lehana). It is thus masticated or chewed with the help of the saliva (udaka) ~~in the stor produced from~~ in the palate (tālu), ~~jihva~~ tongue (jihvā), lips (oṣṭha), throat (kaṇṭha), and passed in the form of liquescent pulpy food (āhāra-rasa, anna) through the gullet (kloma) into the stomach (āmāśaya).

The pulpy food (anna) is ~~turned into c~~ partly digested in the stomach and duodenum, ~~in the~~ taking the form of chyme (āma) whence those organs are called "receptacles of semidigested food, or chyme" (āmāśaya); and passed into the Intestine (small, and great) ~~as chyle (rasa) and thence~~ where it is full digested (pakva), and whence those organs are called "receptacles of fully digested food" (pakvāśaya). As a result of the "full digestion" the nutrient part (prasāda, sāra, rasa) of the food (anna, āhāra) is separated from the waste parts (kiṭṭa, mala), and the former, ~~being~~ transformed (pariṇāma) into x chyle (rasa) is carried on the left side (vāma-pārśva) through the Receptaculum and ~~the left~~ lymphatic, or thoracic, duct, upwards into the region of the heart (hṛdaya).

The nutrient part (prasāda) of digested food (pakva), thus carried to the heart (hṛdaya), is thence, from the heart (hṛdaya), distributed over the whole body by means of ten ducts (dhamanī).

(See p. 16, 17)

No term for the whole canal in Caraka; unless it is prāṇa-vahasa, the air-channel, or channel for the propelling force.

see ~~Caraka~~ p. 188 l. 18; see also p.

The upper (uttara) and lower (adhara) parts of the alimentary canal (mārga), in p. 245, l. 13 (Tr. 465), as exits for eructation, or belch, and gas, flatus, crepitus

See list and description of five prāṇa in p. 64, l. 2 (Tr. 133) p. 30

The udaka-vaha, organs that produce and hold the saliva from throat (tālu) to gullet (kloma).

See p. 134, l. 5 (Tr. 273) See also p. 41

As to rasa = pulp (not chyme or chyle) see Text p. 243, l. 5 (Transl. 459) (āhārasya rasam apariṇatam, i.e. the food-pulp which is not yet transformed)

Anna-vaha, or organs for holding (āmāśaya) and conveying (vāma pārśva) chyme and chyle.

The two portions of the vāmapārśva, viz. receptaculum and thoracic duct are not named separately, but lumped together as situated on the "left side" of the body.

Chyle is not distinguished from lymph, which is really carried by these ~~the~~ two organs; nor the fact noticed that the chyle or rasa lymph is not poured into the heart, but into the (brachi-cephalic) vein, just above the heart.

1 Rasa-, 2 rakta-, 3 māṃsa-, 4 medo-, 5 asthi-, 6 majjā-, 7 śukra-vaha.

x See p. 347, l. 3.4 (Transl. p. 792), where it is said that the agents (bhāva), which cause the transformation ~~of~~ (pariṇāma) of food, are 1, heat (ūṣman, i.e. digestive fire), which cooks, 2, vāyu, wind, which propels (avakarṣaṇa), 3, kleda; gastric juice, 4, sneha, 5. kāla, 6. saṃyoga. The ref. of pariṇāma, however, may be here not only to rasa but to all dhātu as coming ultimately from āhāra.

2/

in the course of which distribution, those nutritive parts (prasāda) undergo a series of seven transformations (pariṇāma), which supply the constitutive elements (dhātu) of the body. These seven transformations, or dhātus are

lymph (or ojas) (rasa), blood (śonita, rakti, rudhira), flesh (māṃsa), fat (medas), bone (asthi), marrow (majjan), semen (śukra).

The waste parts (kiṭṭa or mala) of digested food (pacitva) which are separated in the kidneys (pakvāśaya) from the nutrient parts (prasāda), are hence conveyed for storage in the rectum (sthūla-guda) and conveyance into the two flanks (vaṅkṣaṇa) by the two kidneys and ureters, is the location in the two flanks (vaṅkṣaṇa) of the body, for storage in the bladder (vasti).

The solid portion or faeces (purīṣa) of the waste parts (kiṭṭa, mala), of which are separated from the nutrient parts (prasāda), in the intestines (pakvāśaya), are conveyed for storage to the rectum (sthūla-guda)

The seven elements (dhātus) are similar to the food (anna), subject to a separation of the nutrient parts (prasāda) from the waste-parts (mala). The nutrient parts of each transformation yield in turn the material for the succeeding transformation; while the waste-parts are excreted, or exuded from the body. Thus sweat (sveda) is separated from the fatty dhātu (medas) and exuded through the pores of the body (loma-kūpa)

laśikā p. 308

laśikā "serous fluid", p. 147, l. 8 (Fr. 313)

kleda Fr. "phlegmonous secretion" p. 313.

seven transformations, or dhātus are

liquid portion, urine (mūtra) of

Mūtra-vahāni, or organs for separating (vaṅkṣaṇa) and holding (vasti) urine (mūtra). The two organs, viz Kidneys and ureters, are not named separately, but lumped up together as situated in the "two flanks" (vaṅkṣaṇau) of the body.

Purīṣa-vaha or organs for separating (pakvāśaya) and storing (sthūla-guda) the faeces (purīṣa)

which are distributed from the heart

On the separation see p. 347, l. 13–16 (Fr. 794)

(sweat)

sveda-vaha, or organs for separating (medas) and exuding (loma-kūpa) sweat (sveda). See p. 353, l. 16 (Transl. 809)

New excretions, or exudations (p. 347, l. 13ff) are called upadeha (secondary bodies), or pṛthagjanman (excretion) or bahir-mukha (do) or paripakva (over-digested). Bahir-mukha, coming from an external orifice are flatus, urine, faeces, etc. see Text 369, l. 26. The pṛthagjanmas are mucous of the nose (śiṅghāṇa) (p. 48, l. 1), etc., and paripakvā are 'menstrual blood' (śoṇita) etc., see Comm., Śār., p. 140. Also excretions from ear, eye, mouth (kaṇḍa), genitals (see p. 1), also hair, beard, bristles, nails (see ib); also sneha, see Comm. p. 481. Also apparently laśikā (Fr. 964 p. 215, l. 9, Fr. 969 218, l. 8, Fr. 971 see p. 220, l. 12), also water between skin and flesh, p. 353, l. 15 (see p. 8); also perhaps kleda, p. 215, l. 3 (Fr. 347, l. 4). Also the doṣa or humours (see p. 1), but these would be antar-mukha.

Emmenagogue, p. 147, l. 8

Sweat p. 1

salika p. 145, l. 24, Fr. 310

29 p. 29

The Vessels or Srotas, which serve the Process of Nutrition; and as Śarīra-kaṭaka (see p. 1)

Vimāna, ch. V, p. 259. Transl. p. 502. (see p. 14)

The Elements of Nutrition are: 1, food (āhāra) consisting of (a, semi-liquid (anna), b, liquid (udaka). 2, Chyme (āhāra-rasa) consisting of (a) nutrients (prasāda, sāra) b, wastage (kiṭṭa, mala) 3, chyle (rasa), 4, blood (śoṇita, rakta, rudhira), 5, (māṃsa) flesh; 6, fat (medas), 7, bones (asthi); 8, marrow (majjan) 9, Semen (śukra) 10 // ojas 11, pañchendriya-dravyāṇi (senses) (cetanā) 12, Sweat (sveda) and other secretions.

N.B. Nos 3–11 are prasāda, No. 12 is mala or kiṭṭa

(13) Also here is Wind and Breath (prāṇa and apāna) which are the propelling force of the Nutrition (see p. 30) and which are the form in which the element Air (vāyu) is present in the body (Comm. Vim. p. 591)

N.B. all the 13 elements are Constitutive elements (dhātu) of the body, but of No. 3–11 are nutritive. Also Nos. 3–9 (i.e. seven items) are dhātu in a special sense, or accordingly 3–10 (i.e. 8 elements, not Caraka).

N.B. solid food is mūrtha āhāra-vikāra p. 245, l. 8 (Tr. 464) liquid is drava, ibid.

1, Prāṇa-vaha (No. 13) the canals for Breath (prāṇa) (in the Chest (hṛdaya), and for Wind (apāna) (consisting) continuing the lower Alimentary Canal (mahā-srotas, the Great Canal, from stomach to anus (below the diaphragm) performing the functions of digestion and egestion (but not ingestion, Potter p. 141), about 25–30 feet long)

30 feet Gerrish p. 714

N.B. Vāyu as propeller of food is called prāṇa; as propeller of the 7 dhātus it is in all skin (dhamanī) see Comm. Vim. p. 59. If it gets into the prāṇa-vaha it causes asthma (śvāsa) and nasal catarrh (pratiśyāya) See Nid. p. 228, l. 23 (Transl. 983)

2, Udaka-vaha (No. 16), the canal for liquid (udaka), commencing (mūla) in Palate (tālu), and continued in the Gullet (kloma). Component parts are tongue (jihvā), palate (tālu), lips (oṣṭha), throat (kaṇṭha), Gullet (kloma): these are subject to Hunger (kṣa) and thirst (pipāsā). [Hence Udaka refers to saliva, which serves to lubricate (liquefy) the broken solid food, i.e. mastication, and turn it into chyme. All the parts mentioned contain mucous glands (Gerrish p. 717, 717, p. 726, 755) (labial, palatal, sub-lingual salivary)]

or stomach, the mouth (Hoffmann)

See third page, infra, for Replacement.

3, Anna-vaha (No. 1a), the canal for solids (anna), communicating with the Digesting stomach (āmāśaya, receptacle for semi-digested (āma) food (chyme), situated on the left side (vāma-pārśva), i.e. stomach (which has its fundus on the left). These are subject to vomiting (chardi), want of appetite (arocaka), indigestion (avipāka)

fundus of the

N.B. Āmāśaya cannot be Epigastric, because latter contains liver, & spleen, and Duodenum; but liver and spleen belong to Śoṇita-vaha, and Duodenum belongs to pakvāśaya. It is simply the stomach. It may possibly mean "upper part of abdominal cavity" in the List of "parts of Trunk" Nag, but it is there probably by the "locality" of the stomach (āhāra, No. 8, just as pakvāśaya (No. 10) is the locality for No. 13, 14.

{ Āma is "chyme" i.e. partly digested food, as it is in the stomach. āhāra-rasa.

4, Rasa-vaha, apparently refers to both No. 3 rasa and No. 10 ojas. For the hṛdaya and 10 dhamanī are given as the seats of ojas in Sūtra Sthāna XXX. It is the fact that chyle (rasa) and lymph (ojas), which commence (mūla) in the hṛdaya or heart, and divides in ten spreading smaller ducts (dhamanī)

The term dhamanī is common to the Srotas of all 7 dhātus, in Caraka*, but not in Suśruta, who distinguishes between dhamanī, sirā, and srotas; see Comm. Vim. 5 & Suśruta holds that there are 10 sirā which carry air (vāta) only, but not so Caraka, he makes no diff. between, as Suśruta does. (see p. 14)

see Gerrish p. 57, 501

The facts are these: the lymphatic ducts (right and left) pour their lymph into the (brachio-cephalic) veins just above the heart (Gerrish 501-2). The blood of the lower of these two ducts (thoracic) begins down, near lower end of kidneys. They contain lymph (juice) and those of the small intestine also carry chyle, and these are called 'lacteals' (chyle being white). Hence rasa is "chyle", and ojas is "lymph", but there is this confusion, that the chyle-lymph ducts are supposed to start from the "heart", or at least "regions of the heart", whereas in reality they end there; having begun at the periphery of the body, their course is always from the periphery towards the centre".

*Comm. Vim. 62 dhamanyo 'pi hi rasādi-sthānasu sthāntyeva (p. 16)

(5) Śonita-vaha (No. 4), duct for blood, commencing with the liver (yakṛt), and the spleen (plīhan).

See p. 10

Objections: Caraka's idea seems to be that the nutrient stream begins in the heart, whence it distributes itself over the whole body by means of 10 ducts (dhamanī). When this stream ~~sich~~ reaches the liver and spleen, it turns into blood (that is, the prasāda of it). But in reality, blood begins in the heart, which is its centre of distribution; also, neither the liver nor the spleen, lie in the track of the stream of nutrients; liver is connected with by the bile-duct; but the spleen has no connection whatever. Moreover, the nutrient stream passes through the gullet into the stomach (āmāśaya) where it turns into āma or chyle (half-digested). From there the chyle passes into the duodenum, and intestines; from whence it is absorbed into lymph-ducts, and carried up to the region of the heart. But from Caraka's theory, it would appear that it is absorbed from the stomach (āmāśaya) direct into the heart.

(6) Māmsa-vāha (No 5), duct for the "liquid substratum of flesh", that is the nutrient part (prasāda) of blood is carried away by these māṁsa-vaha, ~~be where th~~ it is solidified into flesh. Thus the matter is explained in Comm. Vim. p. 60 asthy api drava-rupam asty eva sroto-vahyam, i.e. "the bone, too, in ~~a flui~~ a liquid form are carried by the vessels". The basis (mūla) of these māṁsa-vaha are the muscular fasciae or tendons (snāyu) of white fibrous tissue (Gen. p. 260. 366) and the (true) skin (tvac) made of bundles of white fibrous tissue (Ger. p. 671)

Note:
As to snāyu see p. 61, l. 17. 18 (Tr. p. 128, ~~and~~ p. 30) where they are ~~described~~ defined as attached (upanibaddha) to the joints (asthi-sandhi), and where the comm. (p. 186) explains kaṇḍarā by sthūla-snāyu or ligaments.

(7) Medo-vaha (No 6), duct for the "liquid substratum of fat," or the prasāda of the former (No. 5), which is solidified in the two kidneys (vṛkkau) and the ~~vap~~ great omentum (vapā-vahana). ⊗

On the fat-depots of the kidneys see p. 16, 22

On Omentum, see p. 2[illegible], 27

In Nid. p. 215, l. 20 the kidneys are called vaṅkṣaṇa in connexion with mūtra-vaha (Transl. p. 962) See p. 8 See infra note 11

Comm. Vim. p. 60 ~~calls~~ says that vapā-vahana are udarastha, and snigdha-vartikā, and called taila-vartikā, and that Suśruta calls it kaṭi (and the kidney vṛkkau)

(3) Anna-vaha (No. 1a), vessel for (semi-liquid) food, commencing with the stomach (āmâśaya etc. receptacle for semi-digested food), and continued in the left side (vāma-pārśva), etc., in the left lymphatic duct or the thoracic duct". Disorders in them is indicated by dryness in the throat want of appetite (aruchi) indigestion (avipāka) and nausea (chardi).

(4) Rasa-vaha, apparently refers to both, No 3 rasa and No. ojas. For in Sūtra XXX the same statement is made with reference to ojas. The Duct for chyle (rasa) and lymph (ojas) commences in the heart (hṛdaya), and disperses in 10 spreading smaller ducts (dhamanī)

N.B. In Suśruta, the term dhamanī is common to all 7 Dhātus (see Comm. Vim. 8.62 dhamanyo rasâdi-sthānam bhavanti). but Suśruta distinguishes between them and sirā and srotas (see Comm. Ch. 9.8, Suśruta dhamanī-sirā-srotasām bheda vivakṣitaḥ) (See p. 14. 16)

N.B. A term for the network of the ducts is sirā-jāla, (Fr. 186) p. 92, 623
The particular reference here seems to be to the arteries, for the network is said to "throb" (sphurati) (see p. 35)

Cāraka's theory seems to be as follows: Food, having been masticated, or chewed (i.e. crushed in the mouth and semi-liquified by saliva (udaka), passes through the gullet (Kloma) into the stomach (āmâśaya) where it is turned into chyme (āma or semi-digested food), and passed on into the left side (vāma pārśva).

[Later on] its nutrient matter (prasāda) is found in the heart (hṛdaya) in the form of chyle (rasa) and lymph (ojas) whence it is distributed through 10 ducts (dhamanī) over the whole body.

But how does the chyme get into the heart? This transfer apparently takes place in the left side (vāma-pārśva). On that side of the body is the great left lymphatic duct, or the thoracic duct, which carries lymph from the "receptaculum" from the near the small intestine up to the region of above the heart and there discharges it into the brachio-cephalic vein. The receptaculum is situated in front of the 2nd lumbar vertebra on a level with the lower end of the kidneys. (For an analogy of appearance, see infra note 11)

But there are these objections: the lymphatic vessel of the small intestine (the lacteals) carry chyle (mixture of chyme and lymph), but the thoracic duct, as such on the whole, carries only lymph. The other objection is, that the distributing centre of lymph is not the heart. The reverse is just the reverse. The lymph has a collecting centre in the receptaculum; while the blood has a distributing centre in the heart (see Gen. Fig. 566) (they collect in the stomach and intestines, the prasāda

To proceed with Caraka's idea. The chyme (āma) having passed into the heart, its prasāda forms into chyle (rasa), whence it distributes itself over the body. The prasāda of lymph turns into blood, and distributes itself similarly. The prasāda of the prasāda of blood turns into the liquid substrate of flesh, in the fascia and skin, and distributes itself, and so on

The nutrient stream having given out its prasāda to make up the Dhātu, its waste material (kiṭṭa) collects in the rectum and bladder, and is finally expelled.

The 10 dhamanī may mean that each Dhātu has two large ducts, one on each side (right, left) of the body.

8

(8) Asthi-vaha (No.7), ducts for skin and substratum of bone as explained § Comm. p. 80 (see ante note 6), and the prasāda of medas; its chief representative is the bone of the pelvis (śroṇi-phalaka)

(9) Majjā-vaha (No.8), ducts of marrow; situated where are the bones and the joints (or sandhi).

(10) Śukra-vaha (No.9), ducts for semen, i.e. holding and conveying semen. The former are the testes (vṛṣaṇau), the latter is the penis. Beside the vṛṣaṇau is certainly the efferent seminal duct; and so the efferent (ureters)

(11) Mūtra-vaha (No.12) vessel for urine, i.e. holding urine in the bladder (vasti); conveying urine are the two flanks (vaṅkṣaṇau), i.e. the kidneys and the two ureters (Comm. p. 80?)

The same element occurs in Nid. p. 215, l. 20 Transl. p. 262 "flanks" (vaṅkṣaṇa) are mentioned, without naming the kidneys or ureters; just as supra vāmana-pārśva is mentioned without naming the intestines and the thoracic duct.

(12) Purīṣa-vaha (No.12) vessel for faeces, for separating (from nutrient part, prasāda) the intestines (pakvāśaya); for holding the rectum (sthūla-guda).

(13) Sveda-vaha (No.12) vessel for sweat; for separating (sat medas), for excreting the pores (loma-kūpa).

Nyāya seems to be referred to p. 96, l. 21 (nyāyānāṃ) Tr. 193.

The so-called Svedāmbu-vaha, p. 639, l. 23 (Tr. 1335); see also p. 504, l. 15 see also p. 715, l. 7 (Tr. 1574)

The term srotas includes:

(1) Śirā
(2) Dhamanī
(3) rasavāhinī
(4) nāḍī - blood-vessel, vessel about
(5) panthan
(6) mārga
(7) Sañvaccharīra p. 347, l. 14

(1)–(3) syn. ducts of dhātus
(4) see p. 245, l. 13
(5)–(6) syn. canals
(7) Excretory aperture (mukha)

(8) Saṃvṛta (Tib. om.) closed like a holder
(9) Asaṃvṛta open like a passage (Śārīraka)
(10) sthāna
(11) āśaya
(12) kṣaya
(13) Nikṣepa

(10)–(13) syn. holders
locality residence
(or Āśaya 2 mss)

No. 10 applied to ducts of dhātu, Text p. 186, l. 2

No. 7 enumerated p. 41, l. 19, 20

The marga: upper and lower alimentary channel

To return to the transformation (pariṇama) or Dhātu, which take their rise ~~not~~ in the heart (hṛdaya) and ~~are~~ thence are distributed throughout the whole body by means of ten ducts (dhamanī).

Each of them arises from the prasāda of the antecedent pariṇama, (it reaches the liver (yakṛt) and spleen (plihan) see p.208, l.2, and p. 8. 10) ~~are~~ thus from rasa (lymph), ~~and~~ they course in its ducts, these separate (rasa-vaha) off ~~some~~ nutrient ~~portion~~ parts (rasa-prasāda) which ~~then take~~ are transformed into blood (rakta), and as blood ~~has~~ runs course in their own ducts (~~rakta~~ sonita, see the rakta-vaha) p.208,l.2 similar for flesh (māṃsa) the fasciae (snāya) and skin (tvac) are the loci of transformation from blood. For fat (medas) the loci are the kidneys (vṛkka) and great omentum (vapā-vahane). For bone (asthi) the loci are fat (medas) and buttock (jaghane) For Marrow (majjan) the loci are the bones (asthi) and the joints (sandhi)

on this see p. 46 verse 15.

N.B. the reference is to the "medullary cavity" of the long bones, which contain yellow marrow, and to the cavities of the "cancellous tissue" of all bones, which contain red marrow. In the case of long bones the cancellous tissue is at the extremities which form the joints (see farther p. 113)

The loci for semen (śukra) are ~~the~~ two testes (vṛṣaṇau) and the pearls (śoṣka). They include the spermatic appendages ducts (epididymis, vas deferens. The śoṣka is not proper a bones, but mere a vaha.

N.B. by māṃsa, asthi etc is not meant the solid flesh or bone etc but the liquid or semi-liquid substratum which solidifies into those tissues. So M. Comm. Kim. p.60. The bone, too, a worm's form is created in the vessels. That is, from the prasāda of medas, separating off from the medas stream, (the buttocks) transformed into the liquid substratum of asthi, which courses in its own asthi-vaha ducts, and finally solidifies into bone.

~~N.B. The waste parts (mala) of the several Dhātus~~

As. 2 The waste parts (mala) of the several Dhātus, from them arise the 3 humours (doṣa): ~~vāyu~~ wind air (vāta), bile (pitta), phlegm (śleṣman). see p. 184, l. 10. The Comm. p. 481 explains that wind (vāyu) arises (abhinirvartate, not pariṇam) from rasa the Kitta of the food-pulp (anna) which is in the āmāśaya or stomach. It refers (ibid.) to a passage in Caraka which says that phlegm arises from lymph (rasa) [for both are white], and bile from blood (asṛj).

on this see p. 44 verse 7, and p. 45 verse 8

That is apparently how the origin of wind is proved by the eructations which come from the stomach and the flatus or excretus, which come from the bowels (pakvāśaya) through both of which the food-pulp (anna) passes. But both wind cannot originate from any Dhātu, because these are in the hṛdaya and the dhamanī which are outside the alimentary canal.

Besides the humours, there are products of the Kitta of the Dhātus, such as the mala of ear, eye, nose, mouth (saliva), hair-cells, sandals, also hair, beard, bristle, nails, ~~sneha~~ kleda, sweat. also perhaps sneha, kleda, [1st āmā] (see p. 8) kleda = mucus. 2

4

As regards the element (dhātu 7) called Ojas, there is no clear enumeration.

(1, Like rasa (chyle) it is said to originate from the heart and to distribute itself through the 10 dhamanī, p. 192 ff.

(2, Like rasa, it is white

(3, Distinguishes from rasa and other dhātu, (see p. 33)

There are two defects in this theory:

(1, Minor. Confusion between rasa chyle and ojas lymph. Neither have their centre of distribution in the heart. The lymphatic vessels have a centre of collection, in the receptaculum (but not one of distribution; and the lymph goes from that centre of collection to the vein near the heart. In fact the lymph-vessels start from the periphery to a centre, not from a centre to the periphy. (the reverse)

(2, Major. The distribution of the blood (the blood-vessels) are made to start from two centres (liver and spleen), for the nutritive stream only. From such blood in those two organs, ante cendit, it is a stream of lymph. Moreover the stream does not really pass at all through the liver or spleen. The alimentary canal, in fact, has no connection whatever with the spleen, and it is connected with the liver only through the bile-ducts. (see p. 6)

Thus: Comm. Sūtra, p. 186, liver and spleen are said to be the "residence" (yakṛt-plihā'śritaṁ śoṇitam) of blood, while the heart is said to be the residence (hṛdaya-śrayī) of lymph (rasa) (p. 30)

Function of Food. Āhāra or Anna-pāna

p. 155, l. 16. (Tr. 329)

"Food (anna-pāna), agreeable in point of colour, smell, taste and touch, and properly prepared, — experts (kuśala) say — is the life-breath (prāṇa) of "breathing creatures" (prāṇin), in the sense in which that term is commonly understood.* As proved by the manifest result (of taking food), it serves (as fuel to them) to keep the internal (digestive) fire (antarāgni); and thus it serves also to maintain consciousness (sattva, soul). If properly enjoyed, it conduces (in the body) to the healthy condition (prasāda) of the orderly deployment (vyūha)* of the constitutive elements (dhātu), to strength, good looks, and the senses. In the contrary case, food tends to injure it.

* Comm. (p. 407) says that in Śāstra, the term is applied also to trees etc (vṛkṣādi)

* Comm. (407) vyūha = saṅghāta, complex, sum total; but vyūha, means more, the array in which an army moves.

see the same classification of food, below on Cl. 6 (p. 44)

p. 184, l. 4 (Tr. 391)

(Clause 1) "Food, such as is wholesome for a living creature (jantu), taken seasonably, whether eaten or drunk, whether chewed or licked, if only it is thoroughly digested, each by its own particular warmth engendered by the internal fire, confers on the whole (kevala) body, so long as it perseveres in maturing all its constitutive elements (dhātu) and keeping unobstructed the channels conveying to all of them heat and wind (the benefits of) growth, vigour, good looks, feeling of ease, and long life, by (constantly) renovating its constitutive elements (dhātu); for the latter, feeding on themselves (in regular turn), keep up their own natural (healthy and harmonious) condition (prakṛti).

(2) "Now, food [or drink] prepared by chewing etc], contains (both) a nutrient juice (rasa)[1], called prasāda, or "grace", as well as refuse (kiṭṭa), called mala or "dirt". From the refuse come such parts of the body (avayava) as sweat (sveda)[2], urine, faeces, and

by penetrating

Voll: the idea is this: — food renovates the whole body, the whole series of its constitutive elements, a, b, c, d etc., in regular turn, that is, it passes first to a, next b takes it from a, c from b, d from c, and so forth.

[1] Comm. p. 484, l. 14 called poṣaka-āhāra-rasa or nutrient food-juice.
Rasa, or nutrient juice of food = prasāda or tissue of body,
= kiṭṭa or refuse of food: mala or waste-product of body. See clauses 4, 5, p. 43

[2] product of the sweat-glands, a colorless, slightly turbid, aqueous fluid. (Ger. 677), a watery fluid (Bl. 585)
kp watery = serous, glairy = mucous (Ger. 755)

[3] Ear-wax, from "ceruminous" glands (Ger. 696)
Tear, a watery fluid, from lachrymal glands (Bl. 286)
Nose, mucous discharge from mucous glands.
Saliva (serous or mucous fluid) from salivary glands (Ger. 755)
Pores, oily secretion from sebaceous glands (Ger. 676), sneha
Semen, milky fluid from prostate gland (Ger. 845), and viscid, transparent fluid from bulbo-urethral glands (Ger. 846), but not seminal fluid, śukra

[4] Comm. (481, l. 21) says that "etc" refers to sneha, oily fluid of the sebaceous glands.

see reverse

mala is also used as a synonym of doṣa, humour (see p. 35

see obverse.

N.B. These are not the humours but the organic fluids: bile, mucus, and flatus. The "humours" are sublimations from these

~~(The three humours)~~ Wind, Bile, Phlegm; also the dirty secretions (*mala*) of the ears[3], eyes, nose, mouth, pores (*lomakūpa*) and generative organ (*prajanana*); also hair, beard, down (*loma*), nails, etc.[4] (see p. 186, l. 20)

(3) From the nutrient ~~part~~ juice (*rasa*) of the food (*āhāra*, chyme) receive nourishment (not only) such parts of the body (*avayava*) as ~~the~~ chyle^{1} (*rasa*), blood^{2} (*rudhira*), flesh^{3} (*māṁsa*), fat^{4} (*medas*), bone^{5} (*asthi*), marrow^{6} (*majjan*), semen^{7} (*śukra*), lymph (*ojas*), and the material substrata[5] (*dravya*) of the 5 sensations (*pañcêndriya*, 5 sensory nerves), all of which are called ~~the~~ its "profitable elements" (*dhātu-prasāda*), but also such (waste) parts as the slimy fluids (*picchā*)[6] which occur in the ~~vessels~~ bands (*bandha*)[7] and joints (*sandhi*) etcetera[8] of the body.

All these constitutive elements (*dhātu*), the so-called "profitable" (*prasāda*) as well as the so-called "waste" (*mala*) products, so long as they are nourished respectively by ~~the~~ nutrient (*rasa*) and waste (*mala*)* ~~of the system~~ materials, exist each in its own ~~fixed quantity~~ (absolutely[9] as well as relatively) fixed quantity, though in (dependence) on the age and size of the body.

*Text: *malābhyām*, properly *kiṭṭābhyām*.

[5] Apparently a ref. to "sensory nerves", an unrecognized by theoretically postulate.

[6] The term *picchā* indicates that these items are "waste".

[7] *bandha* "band", may be mean a ligament as well as a "holder" or vessel, tube, which binds or holds a fluid. Comm. (842, l. 5. 6) says *snāyu* ligament, tendon, and *sirā*, duct.

[8] Comm. (842, l. 6) says: the ref. to *ārttava*, menstrual blood; *stanya* milk, etc.

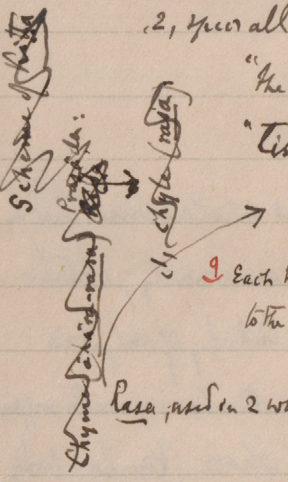
[6] Probably includes *lasīkā*, *kleda*, *sneha*, various kind of watery, or glairy fluids. On *lasikā* see p. 8; *kleda* any serous, or synovial or mucous fluid (see Ger. 66, 69, 73); *sneha*, sebaceous or oily fluid, see note 4, to which belongs milk, *stanya*, see Note 8 (Ger. 869)

Notes.

The idea is:– *Kiṭṭa* or *mala* "waste" is of two kinds: 1, direct, from *chyme*, 2, indirect from chyme changed into one of the "tissues" (chyle, etc). See Scheme below.

Prasāda used to indicate 1, *Nutrient* part of Chyme, and of each dhātu
2, Profitable element, or tissue, as "operative" (as sharing in upkeep of body) a name for the *dhātu* itself.

Dhātu is used in two ways: (see p. 36)
1, generally to include both, profitable operative and waste elements (*prasāda* and *mala*) Comm. 484, l. 21
2, specially for the profitable operative elements (*prasāda*), "the 7 or 8 dhātus", organized elements or "tissues", "operative" elements.



[9] Each has a quantity for itself, as well as in proportion to the others.

Rasa used in 2 ways. 1, nutrient juice of food (*āhāra-rasa*)
2, chyle, or first change of No. 1

Scheme of *Prasāda* and *Mala* (see p. 36)

The whole of this is called *āhāra-gati*, course of food, p. 191, l. 3. with which a trained physician must be familiar.

Chyme (*āhāra-rasa*), *Prasāda* ↓	*Kiṭṭa* : flatus (*vāta*), urine (*mūtra*), faeces (*purīṣa*) (Comm. 481^{18})
1, Chyle (*rasa*), *prasāda* ↓	*Kiṭṭa* : phlegm-humour (*Kapha* or *śleṣman*) (Comm. 481^{18})
2, Blood (*rudhira*), *prasāda* ↓	*Kiṭṭa* : bile-humour (*pitta*) (Comm. 481^{20})
3, flesh (*māṁsa*), *prasāda* ↓	*Kiṭṭa* : wind-humour (*vāta*) (Comm. 481^{20})
4, fat (*medas*), *prasāda* ↓	*Kiṭṭa* : Sweat (*sveda*) (Comm. 481^{20})
5, Bone (*asthi*), *prasāda* ↓	*Kiṭṭa* : hair (*keśa*), bristles (*loman*) (Comm. 481$^{20.21}$)
6, Marrow (*majjan*), *prasāda* ↓	*Kiṭṭa* : sebaceous fluid (*sneha*), milk (*stanya*) (Com. 481^{21} 482^{6})
7, Semen (*śukra*), *prasāda* ↓	*Kiṭṭa* : none (of skin (*tvac*), watery fluid of eye (*akṣi-viṭ*))
8, Lymph (*ojas*), *prasāda* ↓	*Kiṭṭa* : none
9, foetus (*garbha*)	~~*Kiṭṭa*~~ (see p. 186, l. 25)

N.B. Comm. 484^{16}; 2 theories as to origin of *oja*:
1, derived from semen (*śukrajanya*)
2, *sāra*, quintessence of all 7 dhātus (*saptadhātu-sāra-rūpa*).

(Clause 4) In this way, so long as both, the profitable as well as the waste elements, maintain their fixed quantities in the body (śārīra), they tend to keep up in it their proper proportion, ~~and~~ (sama), and their harmony (sāmya). Consequently, since the profitable elements (prasāda) or tissues, are subject to decrease and increase, a corresponding decrease or increase in the amount of consumed food and in the resultant nutrient juice (rasa) serves to maintain the (desired) harmony in the interest of the health (ārogya) of the body.

(Clause 5) The case is the same with the waste elements (mala) and the refuse (kiṭṭa) of food. But waste products (mala), when they are out of their fixed quantity, are capable of being evacuated (by cathartics), and then, when they are treated with ~~cold, hot, and~~ of cold or hot, or similar alternative qualities* medicaments ~~as the case may require~~ (paryāya), they regain their character of harmonizers of the constitutive elements (dhātu) of the body.

(Clause 6) Now, of these elements (dhātu), the profitable (prasāda) as well as the waste (mala), each has its own channel (srotas) of a certain bore (ayana-mukha), which is brimful ~~of its own~~ with of the proper quantity of its own element.

It is thus that the body, such as it is, is produced

*Comm. 485, l. 17, snigdha, oily; rukṣa, dry, etc.

Note: That is, e.g., blood has a duct of a bore just large enough to carry blood on its proper quantity; it cannot carry any other quantity of blood, nor any other element.

* Hence the name Dhamanī; see p. 41

With regard to the Development of the Prāsāda from the Nutritious Juice (āhāra-rasa), i.e. the Nutrition of the Tissues (dhātu-poṣaṇa), there are, according to the Comm. (482) three theories:

1, Some hold that just as the whole of milk (kṣīra) turns into curds (dadhi), the whole of chyle (rasa) turns into blood (rakta), and similarly the whole of blood, etc, into flesh (māṃsa) etc. (Comm. 482, ll. 9, 10).

2, Others hold that the nutrition of the tissues (dhātu-poṣaṇa) takes place after the manner (nyāya) of irrigation-channels (kedāra-kulyā). Viz., the nutrient juice (rasa) of food (anna) having become chyle (dhātu-rūpam rasam) some portion of it keeps up the stream of chyle, while another portion takes the characteristics of blood (śoṇita), i.e. turns into blood; similar with blood, while one portion keeps up the stream of blood, another portion turns into flesh-tissue (dhātu-rūpaṃ śoṇitam), another portion turns into flesh-tissue, and so on. This second view agrees with a passage in Caraka (really Dṛḍhabala, p. 656, v. 14), also with Vāgbhaṭa, and Suśruta. (Comm. 482, l. 10 - 483, l. 2)

3, Again others hold that the nutrition of tissues takes place after the manner of pigeons on a threshing-floor (khale-kapota), viz. the nutrient juice of food (anna-rasa), flowing for each tissue in separate ducts (pṛthak-pṛthag-dhātu-mārga), nourishes

from the food, whether eaten or drunk, whether chewed or licked. ~~But~~ from food, whether eaten or drunk, whether chewed or licked, also the diseases (roga) are produced which occur in this body.

p. 185, l. 1 (Tr. 394) (Clause 7). But it is the consumption (upayoga) of various kind of suitable and unsuitable (ahita) food that is the cause of various Kinds of ~~evil~~ good (śubha) and evil (aśubha)

Summary: the text then goes on to explain why it is that disease arise, even when the diet is properly attented to.

l. 9 [Clause 9] "There are also other causes (prakṛti) of disease (roga) besides the consumtion of ~~unsuitable or~~ unsuitable food; namely unfavorable season; want of judgment; & shamony in the application of the 5 senses."

This is then explained in detail, and various classes of diseases caused by disarrangement are enumerated (Cam. I, 396): p. 186, l. 9 / 187, l. 11 1, in chyle-ducts, 2, blood-ducts, l. 14, 187, l. 12 3, flesh, l. 17, 187, l. 13 ~~4, bone, 5, marrow~~, 4, ~~blood~~ (medas), 5, bone, l. 17; 187, l. 14 6, marrow, l. 20, 187, l. 15 7, semen, l. 23, 187, l. 17 (8), senses, l. 23, 187, l. 17 p. 187, l. 19 N.B. ojas omitted. (9) māyu etc p. 187, l. 3. 20 (10) water (mala) 187, l. 5. 22

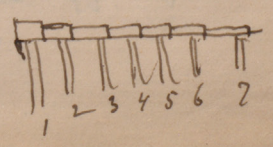
p. 188, l. 18 "After examination one should eat what is suitable, for the body is the product (saṃbhava) of food (āhāra) Final Conclusion (comp. 2

---

the chyle and other tissues (rasādi); now is that portion of the nutrient juice (rasa-bhāga) which nourishes the chyle-tissue (dhātu-poṣaka) contained in a part of the duct (text 104, l. 13 saṃbandha) identical (sama) with that which serves other tissues (dhātu-antara); for the ducts (srotas) which serve to nourish chyle and the other tissues, increase gradually ~~in~~ (uttarōttaram) in narrowness (sūkṣma) and distance (dīrgha). Hence the chyle-nourishing part of the nutrient juice (rasa-bhāga), flowing in chyle-ducts (rasa-mārga) nourishes chyle, then, having, for a time, nourished chyle, it flows, for another space of time, in the blood-nourishing ducts, and acting now as the blood nourishing portion of the nutrient juice, it nourishes blood; then, having, for a time, nourished blood, and acting now, for another space of time, as the flesh-nourishing portion of the nutrient juice, it nourishes flesh, flowing in a still more distant and narrower duct, and so on, for fat (medas) etc. the process of nutrition must be understood. (Comm. 483, ll. 2-9.

The comm. then goes on discuss arguments for and against the two theories, of field irrigation and feeding pigeons, without declaring definitively for either (comm. 483, l. 9. - 484, l. 10).

The comm. adds (484, l. 11 ff) that, acc. to Car., dhamanī is the name common to all ducts of all tissues (dhātu); Comm. so Vim. 62, "dhamanyo rasādi-sthānāni bhavanti. It further says (p. 58 ib.) that with Car. the term dhamanī has even a still wider meaning, while Suśruta uses sirā for ducts of the wind-humour. (comp. 5, 16



1

—as to the parts of the body made of these respectively see Text p. 353, l. 23 ff. Transl. p. 810

Physiology of Metabolism.

As to all dravyas made of these see p. 141, l. 26 (Tr. 299). but Suśruta distinguishes between animate and inanimate, with or without consciousness

The ultimate constituents of the body (as well as of all ~~other natural objects~~) are the five "elements" (mahābhūta): viz. Earth (pṛthivī), water (ap), fire (tejas), air (vāyu) and "ether" (ākāśa). The same elements are the constituents also of all other natural objects. Thus, by those of the latter which are taken into the body as food (āhāra), the elements find their way into the body to subserve to its up-building and up-keep. ~~These subserve the up-building and up-keep of the body which they enter in the form food (āhāra).~~ There, in the stomach and

2

other organs of the abdomen (koṣṭha) the food undergoes a process of digestion, by which those portions of it which are fit for incorporation or assimilation (~~sāra~~ prasāda), are separated from those which are unfit (mala or kiṭṭa) ~~and which are ultimately again expelled (excreted) from the body~~ as excrements (urine, faeces)

see Caraka Sū. XXVIII ~~Vim. VI 2~~ 184

~~In the course of digestion the ~~sāra~~ prasāda portion is first formed into chyle (rasa) in the epigastric organs (hṛdaya) of the abdomen.~~

Sveda is Text 353, l. 16 (Transl. 809) that (moisture, udaka) which under pressure of heat exudes from the pores of the body, receives the name "sweat".

P. 2

From the kiṭṭa or mala (or waste products, arise (according to Charaka)* the following:

Car. Vim. VI 3 184 see Transl. p. 392, 459 note; Śār. VI p. 347, l. 13 ff., and p.

1, limbs (avayava), viz. hair¹, beard², bristles³, nails etc.

etc. refers to sneha (Comm. p. 481)

¹ keśa on head, ~~parties~~; ² śmaśru on face; ³ loma on body,

2, secretions (mala), viz. of ear, eye, nose, mouth, hair-cells¹, genitals²,

¹ loma-kūpa

² genitals, ~~viz. semen and ovum~~ prajanana, Comm. liṅga; reproductive organs, ~~semen~~ fluids of (menstrual blood)

see I 41 4 { 3, excrements (~~nowama~~) viz. sweat (sic), urine, faeces

4, (three humours) wind, bile, phlegm.

N.B.² The separation of prasāda and mala goes on continuously through the metabolistic process: (1) waste of digested food is excrement

(2) waste of chyle, blood, flesh are the three humours

(3) waste of fat, bone, are sweat, hair

(4) etc. etc.

N.B. According to Comm. of Chakrapāṇi, p. 481, l. 17: the kiṭṭa of food (anna) is urine and faeces and wind; the kiṭṭa of chyle (rasa) is phlegm, of blood is bile, of flesh is wind, of fat (medas) is sweat; of bone is hair and bristles, of marrow (majjan) is unctuousness (sneha); of ~~skin is eye-secretion (akṣi-viṭ)~~.

N.B. The order is different (ojas before semen) in XXVII 58 145. The passage is missing in Tüb. 458, but the same in Poona 29, fl. 70a, l. 7. Ind. Off. 335 fl. 91b, l. 9

From the prasāda "quintessence" ~~chyle (rasa)~~ arise (acc. to Charaka)* the following.

* ~~Car. Vim. VI 4~~ Śār. XXVIII 184

1, Chyle¹ (rasa) and blood² (rudhira)

**2, Flesh³, fat⁴ (medas), bones⁵, marrow⁶ (majjan), semen⁷, vital force⁸ (ojas).

hence the last, semen, is said to be the highest goal of food, see Sū. 2 āhārasya paraṁ dhāma śukraṁ, Transl. p. 983

** The first seven are called dhātu, or "supporters" of the body; their prasāda are No. 3, the Sensory Nerves. Their kiṭṭa is mentioned above.

28

Note. On their measures, see p.

*3, the substrata of the five senses (pañcendriya-dravyāṇi).

ad 3*. These are what we should call the "sensory nerves"

(4, the ~~ligaments of the body joints~~, the ~~viscous secretions~~ connections of the body. Network of connexions in the body connecting links picchā bandha śarīra

ad 4 i.e., Comm. p. 482 ~~ligaments~~ tendons (snāyu) and arteries (sirā), (vessels of) menstruous blood, milk, etc. [reading is corrupt] (ārtava, (stanya)

this includes also dhamanī and srotas, ~~etc.~~

Comm. śarīraṁ badhnāti iti śarīrabandha, om. sandhi, latter spurious; or Tüb. 458, fol. 16

i.e., it is not technical = joint the sandhi.

N.B. kiṭṭa clearly denotes substances which are not necessary or essential parts of the body system, e.g. seminal fluid, but ~~does about~~ milk?; ~~and neither~~ ~~~~

All these items, viz. the prasādas or rasas, as well as the malas or kiṭṭas, together make up the sum of the constituents (dhātu) of the body.

When each of them exists in its proper quantity, they are maintain a state of equilibrium (dhātu-sāmya), i.e. they constitute a healthy body.

When any fall off from or exceed their proper quantity, health (ārogya) is restored by regulating the support of rasa or kiṭṭa, as the case may be.

Each of these constituents (dhātu) whether prasāda or rasa, has its own ducts (srotas) through which it supplies the body.

According disease (vyādhi) or disturbance of the equilibrium, arises from irregularity in food. But there are also other causes, such bad seasons, errors of judgment etc.

Cav. Vim. VI p. 185 Sutra p. 188, Sub p. 185, l. 11 ff.

Ghoṣh: the body is the resultant of food (deho hy āhāra-sambhavaḥ); Cav. Vim. VI, 15 p. 188, l. 18

See also Cav. p. 718 l 25 deho rasaja

Commentary on dhātus, Cav. Vim. VI, p. 482 ff, Comm. p. 483

Differing views:

(1, Rasa turns into (pariṇamati) rakta blood; blood into flesh, and so on.

(2, Just as milk (kṣīra) turns chiefly into curds (dadhi), so rasa turns entirely (kṛtsnāt) into blood, and so on.

(3, Just as by means of the irrigation channels (kulyā) of a field (kedārī) rasa i.e. juice or prasāda nourishes the dhātus, the juice (rasa, prasāda) of food, having turned into chyle (rasa), continues in part to run as chyle, another part, having acquired the colour and odour of blood (śoṇita) and thus secondarily blood (śoṇita), continues in part to exist as blood, while the rest turns into flesh, and so on with fat (medas) and the others

(4, Ghoṣh: From rasa comes rakta, from there comes flesh, from flesh comes fat, thence comes bone, from bone comes marrow, thence comes semen, from semen comes embryo (garbha). All these are the products of prasāda. Milk is omitted.

Śrīnāth is quoted as saying that the āpyo rasa (i.e. fluid juice of food (not technical chyle) is for the space of 3000 Kalā in each dhātu, and thus the transformation of juice into semen is done within one month.

(5, After the manner of ploughs in a field, the juice (rasa) of food having gone into the several paths of dhātus (approaches) keeps up chyle (rasa) etc.; but the portion of juice which keeps up the dhātu does not preserve the same quantity in keeping up another dhātu, for the tubes (srotas) in which the juice flows become gradually finer and longer; after having nourished chyle, passing through the channels which nourishes the blood, the blood-nourishing portion of juice chyle, nourishes blood, and so on. For after the period of nourishing chyle, in the following period blood takes its rise, nourishes flesh and the others. And the saying that under chapter Rājayakṣma, that "the blood, owing to the passage being obstructed, becomes flesh", this is said with reference to blood running into irregular

not with ref. to blood which nourishes (the dhātu). As to the theory of the transformations, according to the order of inirsence of turnings into blood etc., it takes a long time for semen to arise etc. etc.

Ojas = substratum of consciousness (sensations)

Comm. p. 484, l. 19 ff. also p. 509, l. 7 ff.

Ojas is the Sāra (or prasāda) of the seven dhātus. Others make it to have semen (śukra) for its source. In refutation of this theory, it is said: Besides the dhātus, from chyle down to semen, there is the force (tejas) which is ojas, [vital force].

Others make it a kind of semen (śukra-viśeṣa) see Comm. p. 509, l. 9

because its function is the sustaining of life (prāṇa-dhāraṇa)

Car. Śārīra XXX 4.5 p. 193

That (i.e. ojas) which ~~is the consciousness of touch~~ has present in it sensation (sparśa) and thought (vijñāna), which is the ~~supporter~~ sustainer (dhāri) of life, that resides (saṁśrita) there (i.e. in the hṛdaya).

dhāri = śarīr-endriya-sattva-ātma-saṁyoga dhāri jīvitam. i.e. complex of all bodily sensations. sparśa is only an example.

as to sparśa touch being equal to all senses, see p. 60, l. 4 Car. Sūtra XI 38 to 60 (Transl. p. 124) Also Śārīra ltr. Transl. p. 7, Text p. 310, l. 26

Read text tad-dhi yat = sparśa-vijñānam etc.

Tüb. 458 fl. 171b¹ reads tad-dhita sparśa-vijñānam dhāri
Ind. Off. 335, fl. 119b⁴
yat tatra saṁśritam ||

i.e. for that which resides there (i.e. in hṛdaya) that is ~~the~~ recognized by the (active presence of) ~~consciousness~~ touch and the other sensations)

Poona 925 fl. 90a l. 3 ... yad-dhi tam sparśa-vijñānam dhārayam tatra saṁśritam.

Of the ojas, ~~which is~~ altogether concerned with that (i.e. with ~~consciousness~~ the sensations of touch etc.) it (i.e. hṛdaya) is the place. There is the whole complex of consciousness (caitanya). (see Text VI, 11, p. 226, and Note 16)

Therefore, in medical science [cikitsite Tüb. and Poona], the hṛdaya is called "the grand" mahat and "wealth" (artha).

From this grand (mahat) source (mūla) the 10 carrying channels (vāhya) of Ojas which spread (vidhamyante) over the whole body, are called ~~Maha~~ the "grand-sourced ones" (i.e. Mahāmūla).

The real text is tad = dhita-sparśa-vijñānam dhāri yat tatra saṁśritam:

i.e. that which resides there (in hṛdaya) is the sustainer (dhāri) [of life] which is recognized by the presence of (dhita) [the sensation of] touch. [that a body is alive can be ascertained by its responding to touch].

Or: that which has placed in it sensation (sparśa) and thought (vijñāna), which sustains life, that is in it (hṛdaya).

Done

Nourished by that Ojas all embodied ones (men, dehinaḥ) subsist alive, without it the life of all beings does not (cannot) exist [ceases to exist]

Text: Tüb. 458, fl. 171b³ Ojo-vāhyāḥ śarīre yā vidhamyante samantataḥ ||
Ind. Off. 335 fl. 119⁵ tejo-vāhyāḥ etc.
Poona 925 fl. 90a⁵ Ojo-vahā ... vidhisyante etc.

~~From~~ In the first* moment of the formation of the embryo (garbhasya ādau) it (ojas) is the essence (sāra), being the essence (rasa) of the essence (rasa) of fecundation (garbha) [i.e. the junction of the seminal fluid of the male ~~with the~~ (śukra) with the menstrual blood (oöphorous fluid, śoṇita*) of the female]

cf. Śārīra ~~XXX~~ 260 Transl. p. 193 note p. 96, l. 26

Done

* The essence of fecundation (garbha-rasa) is the embryo, and the essence (rasa) of the embryo is the Ojas, which enters into its hṛdaya and thus causes it to be alive. The comm.'s idea (p. 510, l. 10) is: Ojas is actively present through the three moments of fecundation: (1) the impregnation of the

Unless it (ojas) is destroyed, there can be no destruction; it is the sustainer (dhāri) of life, dwelling in the hṛdaya.

Done

It (ojas) is the quintessence (rasa) of the body, its lubricant (sneha); the life-breaths (prāṇāḥ) depend upon it.

(phalanti: Comm. phala = vaha, lit. transl. = fruitbearing?)

(as to) Its (ojas) ~~currents~~ spread (phala), they ~~are~~ spread in manifold ways directions, hence they are called "greatly spreading" (mahā phala).

Done

On account of their very always full swell (dhmāna) they are (called) dhamanī; on account of their flow ~~they are~~ (called) currents (srotas); on account of their running (sarāṇ) they are streams (sirā),

~~Hence~~ By him who without protects that grand one (mahat), those grand-honoured ones, that ojas, by him the causes of mental grief should be eschewed particularly.

Whatever pleases the hṛdaya (hṛdya, cordial), what is conducive to vitality (aujasya), whatever is favourable ~~to the~~ (prasādana) to the currents (srotas), all that one should pursue purposely, (viz.) tranquillity and knowledge.

male, the conception of the foetus and the ~~[illegible]~~ resulting creation of the embryo, the during the various stages of the development of the latter and resulting growth, ~~the~~ its heart (hṛdaya) is developed, the ojas residing in it ~~[illegible]~~ carries life in the embryo,

Done

Text. In all MS. is yasya anāśān na nāśo'sti (not yasya nāśān, as the prints)

Sneha is the material substratum of life, what is the "lubricant", modern techn. term wanted. Comm. does not understand it, being ignorant of chemistry, makes it synonymous with rasa.

Text: Tub. 458, fl. 171b^{6} yat śarīra-rasaḥ snehaḥ prāṇā yatra pratiṣṭhitāḥ

W. Off. 335, fl. 119b^{7} yac charīra-rasaḥ snehaḥ prāṇā yatra pratiṣṭhitāḥ

Poona 925 fl. 90a^{7} yac charīra-rasaṁ sneha prāṇā yatra pratiṣṭhitāḥ | sic

Done

Text: Tub. 458 fl. 171b^{6} tat-phalās tāḥ phalantīti bahudh-eti mahāphalāḥ |

Poona 925 fl. 90a^{8} tat-phalās tāḥ phalantyeva bahudh-eti mahāphalāḥ. |

I.W. Off. 335 fl. 119b^{8} tat-phalā bahudhā vā tāḥ phalantīti mahāphalāḥ

* apparent because ojas ~~is the~~ and its seat the hṛdaya is the basis of sensations (see above)

Done

Text: Tub. 458 fl. 171b^{8}–172a^{1} (and I.W. Off. 335 fl. 119b^{9} have) yad yad hṛdyaṁ yad aujasyaṁ etc.

but Poona 925 fl. 90a^{9} has yat syād hṛdyaṁ yad aujasyaṁ etc. as do Print

Detached Notes

(1) Explanation of term doṣa = humour, Sūtra I, 55^{3} See also Text p. 337, ll. 5.6 See also p. [illegible] on number
347. l. 3 and 4.

(2) Two seats of disease: body (śarīra) and mind (sattva-saṁjña) Sūtra I 53^{3}
as to sattva see Sūtra VIII 1^{44}

~~(4) There is curious division of the body in Sūtra XI ~~83~~ p. 61, l. 17 [Tr. p. 127], comm. p. 185-6.~~

See p. 24.30

~~There are three approaches (mārga) to the body for disease: viz (1) śākhā or branches, (2) (a) marma (b) asthi-sandhi; (c) koṣṭha.~~
~~śākhā are said to be blood (rakta) and the other dhātus, also the skin (tvak). These are the "outer" (vāhya) approach~~
~~Marma are abdomen (vasti), hṛdaya (upper part of trunk) and mūrdhan or head.~~
~~Asthi-saṁdhi are the joints (asthi-saṁyoga) and the ligaments attached to them (snāyu, kaṇḍarā)~~
~~These two together form of the "middle" approach~~

~~This division is founded on the simile of a Tree. Its branches or śākhā, and its bark (tvak) are its outer portion. Now the network of channels of the dhātus resembles the branches of a tree, and in its bark runs its sap (rasa); hence the outer (or vāhya) approach are the seven dhātus: viz. (1) rasa, (2) rakta, (3) māṁsa, (4) medas, (5) asthi, (6) majjan, (7) semen~~

For another division, connected with Vidradhi, see Sūtra XVII, (Transl. 196-7) 89.90.96-8
97.98.99

§ 98. Three divisions of Trunk: (1) hṛd, (2) nābhi (3) vasti.
Verse 89b implies that (a) kloman (b) yakṛt, (c) plīhā (belong to hṛdaya) (d) kukṣi and (e) vṛkka belong to the Nābhi section; but vaṅkṣaṇa to the Vasti section; so also in § 96.
This 3fold division would seem to include the whole trunk (koṣṭha), not merely the abdomen; the diaphragm was not known apparently. The epigastric region includes the Thorax.

On the same subject, see Reverse.

dhamani as "arteries and nerves", p. 1826
vaṅkṣaṇa as "pubic regions" p. 962, "pubic and iliac" p. 74, for kidneys see note 14
kāsa as "consumption" p. 212
vasti as "anal canal" p. 196, 198, 402/962, as "urine-bearing ducts" p. 967; as "arms" p. 129 (probably false for hasta)
āma as "stomach" p. 217; as "mucus" p. 373.
udara as thorax p. 221 (wrongly according to comm. p. 290)
vṛkkau as "two divisions of the heart" p. 388
śakti as "haunches", p. 388
rasa as "food-juice" p. 932 396 (comm. says it is technical (rasa-saṁjñā-nidhā p. 20, chyle)
~~rectum~~ vasti as "rectum" p. 952, as "anal canal", p. 962
kukṣi as "womb" p. 956 736 750 kukṣau sthānaṁ garbhasya; as "stomach" p. 462-4
~~m~~edas as "adeps" p. 966
śarīra-kleda as "impurities of body", p. 962 [moisture?]
gharma-māsa as "month of sweat" p. 471

~~(5) Rasa in connection with hṛdaya, in Rasa-kṣaya Sūtra XVII 61^{96}~~

~~(6) Ojas as white (śuddha, śukla) substance, see Sūtra XVII 71^{96} Described by bile, see p. 23) (Transl. p. 193)~~

~~(7) "Nerve" transl. snāyu, Transl. p. 195, but "sinew" p. 719~~
Mala = doṣa = humour, transl. "fault") XXX 23^{128} Transl. p. 260.

(8) Hṛdaya transl. "Thorax" Transl. p. 189 ~~196~~ "thoracic region" or "heart", p. 197
p. 200, 215, 952 as "breast" p. 806
but uras transl. "thorax" p. 221

(9) Passages omitted; Transl. p. ~~197~~ 198, 212 (tṛṣṇā) and (hṛd-roga);
p. 228 (aruṇa), p. 504 (medas and asthi) addition (nerves) p. 380

(11) Assumptions: see p. 698 note, 699

(10) Passages wrongly translated, p. 980^{2}, 510, 604, 744, 846, 231, 394 723, 809 note, 447, 1413 — or kha-mala [illegible]

Kloman as "that part which joins throat with thorax"! (lungs) p. 196; and as "bladder" p. 504
sandhi or sakthi as "cartilage" p. 504
snāyu as "artery" (p. 128) for "tendon"; as "sinew" p. 144
~~sirā as "nerve" p. 144~~ .1788
māṁsa as "skin" p. 397
-khā as "duct" p. 400

sa-sneha as cold, p. 6
lasikā as saliva, p. 313
mūrdhan as "brain" (p. 127) for "head"
vasā as "serum" p. 381
mūtrāśaya as kidney, p. 962, for "bladder"

see p. 34

Tüb. 458 fol. 98a⁴ has parvāṇy-āmāśayo medaś=ca
Poona 529, fol. 52a⁶ „ do
I. Off. 335, fol. 68b2 „ do

Re Divisions of Body. See Car. Sūtra XX, p. 110, l. 6

Made with reference to localisation of the three humours:

(1, Wind-humour (vāta) is in the lower part of the body, incl.

(1, vasti, (2, legs (sakthi), feet (pāda).

Here vasti (hypogastric) incl. (a) purīṣādhāna or holder of faeces) = pakvāśaya (rectum ~~large intestine, colon~~) and

(b, kaṭi or loins (=vaṅkṣaṇa testicles)

But pakvāśaya is the specific locality of vāta

(2, Bile-humour (pitta) is in the middle part of the body, viz.

see Transl. p. 961-967, where it is distinguished from ojas.

(1, sveda (sweat), rasa chyle, rudhira blood, lasīkā (lubricator = ojas?)

(2 āmāśaya (~~smaller~~ intestines) or āmāśaya adhobhāga

But āmāśaya is the specific locality of Bile.

(3, Phlegm-humour (śleṣman) is in the upper part of the body, viz.

See Transl. p. 980, uraḥstha, Text, p. 224, l. 18

(a, Chest (uras) (b, āmāśaya (~~or udara~~) (~~smaller~~ intestines) or ūrdhvabhāga

(c, śiras (head) (d, grīva (neck) (e) parvāṇi (apparently arms and hands, not "joints"; (f, medas (fat)

Read bāhū arms

But ~~Udara~~ Uras is the specific locality of ~~Bile~~ Phlegm.*

In this Division we have the three sections from above.

(1, uras = hṛdaya ~~= (comm.) āmāśaya-ūrdhvabhāga~~) [phlegm]

(2, āmāśaya = nābhi = (comm. āmāśaya-adhobhāga) [bile]

(3, vasti or pakvāśaya = ~~(comm.~~ āmāśaya = „ [wind]

See Note, right margin, page 10

It will be noticed that āmāśaya is mentioned twice with bile and with phlegm. The comm. explains that this means that āmāśaya has an upper (phlegm) stage and a lower (bile) stage. Accordingly we have the following division:

(1, Uras = hṛdaya } [phlegm]
hṛdaya { (2, a āmāśaya ūrdhva-bhāga }
nābhi { 2 b āmāśaya adho bhāga [bile]
vasti (3, pakvāśaya [wind]

* All my MSS read uro, not udaro; the comm., p. 290, has āmāśayordhvabhāga, and for bile it gives āmāśayādhobhāga; ~~accordingly it makes uras the upper portion of the āmāśaya, and divides the whole tract only in two portions (1, āmāśaya (upper) and (2, pakvāśaya (lower)~~

Sūtra XX, p. 119 l. 6 ff. 4 divisions			Sūtra XVII, 89.96⁹⁸ 3 divisions			
Uras	phlegm	hṛd kloman	hṛdaya	Koṣṭha	chest, cardiac	
Āmāśaya ūrdhva					diaphram ~~[illegible]~~ epigastric	abdomen
Āmāśaya adhas	bile	yakṛt, plīha kukṣi, vṛkka	nābhi		gastric	
Pakvāśaya	wind	vaṅkṣaṇa	vasti		hypogastric	

~~This is said~~ It is not apparent what organs belong to this, unless it be the heart, (hṛdaya) properly so-called, which contains ojas the colour of which is white (Sūtra XVII 71⁹⁶); and whiteness indicates phlegm (Sūtra XX 13¹¹³; ojas is also sneha (XXX 9¹⁹³) and so is phlegm (XX 13¹¹³). Of course the heart (hṛd) belongs to the upper division of the body (uras); but the double mention of āmāśaya in Caraka is in all probability of false reading. For it will seen that the "arms" are entirely omitted in the enumeration of parts of the body). For we have the following list of parts.

(1, Head (śiras)
(2, Neck (grīva)
(3, Parvāṇi or Hands
(4, Chest (uras)
} seat of phlegm

(5, Āmāśaya = upper abdomen } seat of bile

(6, Pakvāśaya = ~~lower~~ middle abdomen
(7, vasti or + ~~lower abdomen~~ bladder
(7, ~~legs~~ Lower limbs (sakti)
(8, feet (pāda)
} seat of wind

Here "arms" (bāhū), corresponding to No. 7 "legs" (sakthinī) are omitted. Clearly bāhū, "two arms", by some ~~accident~~ accident has dropped out and āmāśaya has got duplicated. The accident is clearly very ancient; for it has taken place before the Comm. Cakrapāṇi wrote. And he, not noticing the omission, or unwilling to interfere with his traditional text, explains the difficulty, by suggesting a division of āmāśaya into an upper (ūrdhva) and lower (adhobhāga) portion. For another similar omission, see my Osteology.

but see p. 16 where it is a 'water-bearer', i.e. omentum

See Car. Vim. II, Transl. p. 464; but clearly 'womb' in Śār. II, 28, p. 323 of Text, Transl. 706

Hence the division of Trunk is really a threefold one in both Texts XVII 96^{98} and XX, 1, p. 110, ll. 6-12; viz.

See also note on p. 12

I. **Uras** or **Hṛd** Chest, incl. **Kloman** lungs and **Hṛdaya** heart

II **Āmâśaya** or **Nābhi**, upper abdomen, (Epigastric and Umbilical) incl. **yakṛt**, liver, **plīha** spleen, " **Kukṣi**, stomach & smaller (and larger colon) intestines " **vṛkka**, kidneys.

II { **Ūrdhvâmâśaya**, or Epigastric, with liver and spleen / **Adha-āmâśaya** or umbilical with stomach & kidney.

III **Pakvâśaya** or **Vasti**, lower abdomen, (hypogastric) incl. **vasti** rectum ~~larger intestines, colon~~, & bladder, " **vaṅkṣaṇau** (two) testicles

pakvâśaya, hypogastric

~~Another view of the Division.~~

~~I Uras~~

The **Abdomen** taken by itself is also divided in three parts (with ref., e.g., to **gulma**)

another theory in Gulma III 5^{211}, p. 8

I. **Ūrdhva-nābhi** (āmâśaya), i.e. above the navel, epigastric, incl. (1), yakṛt, liver, **plīha**, spleen (2) **Kukṣi** stomach and **vṛkka** kidneys = I **Hṛd** = No II of former division, **Āmâśaya**

II. **Pakvâśaya**, i.e. larger intestines, colon, umbilical = II **Nābhi**

III **Jaṭhara**, hypogastric, bladder (womb), testicles = III **Vasti**

} = No. III of former division { **pakvâśaya** / **vasti**

NB In this Division No. I = No. II of former Division

No. II and III = No. III of do

NB. in this division the terms contradict those of the former, espec. the **hṛdaya**. As the former is the division of Charaka, this cannot be his. It is, in fact that of Suśruta, see my Essay in JRAS. 1908, p. 1020 ff.

It must have existed already at the time when the Text was constituted by Dṛḍhabala; it shows that this portion of the Text goes back to Caraka, and that the corruption came in afterwards, but **long before** Dṛḍhabala, so that it roused no suspicion.

(11) See Sūtra XXIV 23^{128} where rakta-vāhinī or blood-current ducts are distinguished from rasa-saṁjñā-vahānī or ducts carrying the "so-called rasa", i.e. ojas.

(12) See Sūtra XXIV 26^{128} where hṛdaya is referred to as the sthāna of cetas [because it is the seat of ojas, cf. XXX 5a^{93}]

(13) On lasikā see ~~Comm.~~ Transl. p. ~~961~~ 967, ~~Text p. 218, l. 11 & p. 220, l. 12.~~ transl. by "saliva" p. 313 !! p. 2

13ª On ~~sveda see Text~~ p. 353, l. 16 See p. 14

(14) On vṛkka and vaṅkṣaṇa. ~~Regarding~~ See Car. Nidāna ~~III~~ IV 6, p. 215, l. 20, where mūtra-vahānām srotasāṁ is qualified by vaṅkṣaṇa-vasti-prabhavāṇām, i.e. "the urine-bearing ducts which have their source in the kidneys and bladder." Here clearly vaṅkṣaṇa = vṛkka or "kidney", and vasti (as usual) = bladder. The Transl. has "the urine-bearing ducts of the pubic regions and the anal canal", which is absurd, for the "anal canal" or rectum does not "bear urine". He has, however, the correct interpretation in the note on p. 967

The probability is that the text has been anciently falsified by scribes ignorant of internal ~~ext~~ anatomy. The text probably ran mūtravahānāṁ srotasāṁ vṛkka-vasti-prabhavāṇāṁ "of the urine-carrying ducts which originate in the kidneys and bladder." A later ignorant scribe, not understanding the internal anatomy, but knowing the existence of the bladder as the receptacle of urine, and the urethra (or penis) in the loins, thought that the text must be vaṅkṣaṇa-vasti, forgetting that prabhava means "origin", not "outlet".

(15) Prāṇa-vahāni srotāṁsi are mentioned in Nid. VI 3, p. 22~~8~~4, l. 23 Transl. p. 980

(16) hṛdaya used psychologically, "filled with grief" Text p. 226, l. 2 ib., l. 5, hṛdaya-sthāyī rasaḥ or "the rasa which stays in the heart", according to comm. p. 83, = ojas

Done

Or: rasa and saṁjñā may be taken separately: rasa = chyle and saṁjñā = manas = 6th sense, above which is ojas. So saṁjñā in ~~xxx~~ XXIV 26.27^{128}

Serous fluid, see "serous membrane" in [illegible] Dy. See p. 42

The comm. (in Transl. p. 66) quotes from Śārīrasthāna (VII 15 (p. 353, l. 15, Transl. p. 908)): yan māṁsa-tvag-antare udakaṁ tal lasikā-śabdaṁ labhate, i.e. "the fluid between flesh and skin takes the name lasikā" (lubricant). In Transl. called a "dhātu"

Similarly we have Text p. 208 (Tr. p. 945), l. 2 yakṛt-plīha-pravahāṇāṁ lohita-vahānāṁ srotasāṁ i.e. "the blood-bearing ducts which originate in the liver and spleen".

See also Text p. 218, l. 9, mūtra-vastau or "in the urine-bladder" (not "urine-bearing [illegible] ducts", as in Transl. p. 967), l. 11, mūtrāśaya

Notes from Nidāna of Caraka

Wind-Fever

I adhy. p. 203, l. 10. "When the wind-humour (vāyu) is excited (prakupito), having entered the āmāśaya, i.e. ~~that~~ the place of heat (uṣmaṇaḥ sthāna), it becomes mixed with the heat [i.e. becomes heated wind], (and, ~~having become~~ going along with that element (dhātu) into which the food on the first place ~~first~~ changes and which is called "chyle" (rasa), ~~and having entered~~ through (pidhāya) the channels† (srotāṃsi) which convey the ~~warm~~ chyle and other (i.e. blood)* ~~and sweat~~ (sveda), and ~~having~~ disturbing** ~~overpowering~~ [or interfering with] (upahatya) the digestive fire (agni), and ~~expelling it~~ driving the heat out (bahir nirasya)) from the paktisthāna (or pakvāśaya) it occupies the whole body; and then (thus) ~~pro~~ produces fever.

Bile-Fever

Ist adhy. p. 204, l. 4. "When the Bile-humour, in an excited state (prakupitam), coming into contact with the very heat of the Āmāśaya [with the heat of Āmāś. and Pakvāśaya] and ~~following~~ go along with the dhātu which is the transformation of food and which is called Chyle (rasa) and filling the ducts which convey the Chyle and the rest (i.e. blood, read rasādi for rasasveda), and overpowering by its flood (dravatvād), the digestive fire (agni), and ~~expelling~~ driving out (bāhir-dvāraṃ nirasya) the heat from the place of digestion (pakti-sthāna = pakvāśaya) occupies the whole body tormenting it. Thus it produces fever".

Phlegm-Fever

Ist. adhy. p. 204, ll. 17ff. This is the same text as with ~~Bile~~ Wind, only substituting Phlegm for Wind.

Rakta-pitta Haemorrhage.

IInd adhy. p. 207, l. 22 – p. 208, l.

"Bile becomes excited [through improper diet] and the blood (lohita) increases beyond its [normal] measure. When it [the blood] has thus exceeded its measure, the excited bile running all through (anusarpad) the body, ~~stone~~ ~~approaching~~ whatever of it

Comm. p. 19. 51/ [nābhi-stanāntaraṃ jantor āmāśaya iti smṛta ||
"between the navel and chest of an animal is the Āmāśaya". Vim. II, 24 p. 247, l. 13.

† These "channels" are the ~~smaller~~ intestines (both small & large) or grahaṇī. Comm. quotes Charaka: agny-adhiṣṭhānam annasya grahaṇād grahaṇī matā | "the place of agni is called grahaṇī on account of taking up the food". Suśruta: pakvāmāśaya-madhyasthā grahaṇī sā prakalpitā

* rasa-sveda probably false for rasa-sneha "chyle-fluid"; but sveda also means "warmth", hence "warm chyle". or rather for rasādi i.e. rasa and blood; for the plural srotāṃsi requires it

** upahatya may be a false reading, "absorbed", = miśrī-bhūta above.

These false readings already in all MSS., ~~which proves that they must have existed already in the copy on which Dṛḍhabala worked, who did not venture to interfere with the traditional text.~~

Text āmāśayad evoṣmāṇam upasṛjya; read āmāśayāder ūṣmāṇam i.e. the fire of Āmāśaya and pakṣvāśaya.

(pratipadyate)
reaches ~~enters~~, the mouths of the ducts ~~which~~ and carry the blood ~~and~~ which bear their origin (utpattisthāna) in the liver (yakṛt) and spleen (plīhan), ~~and which are dilated through~~ while they (the mouths) ~~are~~ are forged (or bramful, pūrṇāni) with the swell of the blood-, ~~that~~ it obstructs the blood- And it is on account of such obstruction and the consequent assumption of the small and colour of the blood, that the bile is called blood-bile."

or obstructed (pratirudhyate). Comm. p. 39 gives both readings but the MSS. have only pratipadyate

Comm. p. 39 observes that Caraka in the Cikitsa-sthāna says plīhānaṃ ca yakṛc caiva tad adhiṣṭhāya varṣate | srotāṃsi rakta-vahāni tan-mūlāni hi dehinām ||
i.e. it has its residence in the liver and spleen; the blood-carrying ducts there have their source in men.

N.B. the blood-bearing ducts are called śoṇita-vāhinī dhamanī in VI, 12, p. 226, l. 11.12

p. 208, l. 15

Again it (bile) has two paths (mārga): upwards and downwards. In a body where it comes into contact with phlegm, it egresses through ear, nose, eye: in a body in which it comes into contact with superabundant wind (vāta) it egresses by the paths of urine and faeces.

This is because phlegm resides in the upper part of the body, while wind resides in the lower parts. See Note to on p. 6

Gulma. A "Wind" disease.

III adhy. p. 211, l. 6 ff. also l. 20 'Wind' variety

"In consequence of such malpractices, the wind (vāta) becomes excited (prakopa). Thus excited, having entered the great duct (mahāsrotas) [i.e. the intestinal canal, the grahaṇī, duodenum and colon], and on account of its roughness (raukṣya), ~~it becoming hard~~ astringent (kaṣāya) and congested (āplutya) it forms globules (piṇḍita avasthāna); and causes severe pain in the hṛd, vasti, and the two pārśva and the navel and hence it is called Gulma. This is the "Wind-gulma"

Note:

The Transl. p. 952, has "thorax" for hṛd; but this is obviously impossible, because the wind is said to enter the "Great Duct", i.e. the intestinal canal, which does not go up into the chest, but down into the abdomen. (See Comm. p. 57) Therefore all 5 divisions must be placed in the Abdomen. The division according to Caraka is as follows:

I. Hṛd	= Epigastric or Āmāśaya
II Nābhi	= Umbilic
III Vasti	= Hypogastric
IV. V two Pārśva	

This is Suśruta's theory, which differs from Caraka's. In the latter's theory: I āmāśaya II. Pakvāśaya and hṛd is the III Vasti chest (uras) or I urodhara-nābhi II nābhi III jaghana

Bile Variety

p. 211, l. 24 - p. 212, l. 2, 8.

"The Bile, along with the Wind becomes excited; and it (bile or other read. saṃmūrchya) ~~That Wind (vāyu)~~, having become solidified (saṃmūrcha) by the wind (vāyu) (in succession of Āmāśaya) produces those pains (vedanā) which have been mentioned in connection with Vāta-gulma. (The Bile inflames (prajvalati) ~~him~~ this patient (enaṃ) ~~wind~~ in the stomach (kukṣi), heart (hṛd), chest (uras), throat (kaṇṭha). ..... This is the "Bile-gulma"

Note: Here hṛd is not the epigastric, but specifically the "heart", as shown by its position between "stomach" and "throat"; and uras is probably "lungs". We have here Caraka's theory, according to which hṛd is a general word = "chest", and specifically "heart"; hence here uras which generally means "chest" (syn. hṛd), has the specific meaning of klomān or "lungs".

p. 212, l. 12–

Phlegm Variety.

"The phlegm, along with the Wind (mārutē), becomes excited. It (mārutē) solidifying (sañvartya) the excited (phlegm) [into globulars] in certain parts (ekadeśē) of the Āmāśaya (epigastric), produces those pains which (yatō'tha) have been mentioned in connn. with Wind-gulma. But the phlegm produces in him (i.e. the patient) "cold fever" etc. .... This is the Phlegm-gulma"

Dūṣya

On these p. 215, ll. 8-10 (Tr. 961), p. 220, l. 12 (Tr. 971)
Also Tr. p. 110. Also p. 218, note † also p. 499, 16.17 (Tr. 796)
also p. 569 l. 11 (Tr. 585) Also p. 108, l. 19, ~~p. 569, l. 11~~

Soṣa. Phthisis.

Nidāna VII. 16, p. 227, ll. 4,5. Transl. p. 984

"When these (i.e. dōṣa, three humours) in their vitiated state (vikṛtāḥ) overspread the body, remain obstructing the mouths of the channels of the ducts (which convey the transformed food), then whatever food a person takes, that only serves to increase the urine and faeces of that person". No other element (dhātu) of the body can be formed. He (the person) subsists [only] on the basis (support) of the faeces."

In such connections, as a rule the mukha of ducts is spoken of; the idea apparently being that the humours, from their own ducts, enter the rasa-carrying ducts (dhamani) by the mouths of the latter.

N.B. the faeces are also among the dhātus, so Comm. note in Trans. p. 984

i.e. the perversity of life consists only in products or effects!!

Vimāna. Chapter on. Humours.

I, 2.3, p. 238, l. 18 ff.

"There are six tastes .... Improperly used they serve (prakalpayanti) to excite (prakopana) the (potential) dōṣa. These dōṣa are three: Wind, Bile, Phlegm. In their natural (prakṛta) state they are beneficial (to the body). In an non-natural (or morbid, vikṛta) state they hurt the body."

That is six rasa-dravya, or things endowed with one of six tastes. For a taste by itself cannot be used as food; but something endowed with taste (rasa-dravya) can. See clause 6.

The "humours" are called dōṣa "fault" because they are potential causers of morbidity. See definition Text p. 337, l. 5-6
See also p. 5 note 1 also Text 347, l. 3-19 Transl. 796

The Metabolic process or the incorporation of food into living body. See "Digestion" in Med. Dr.

Vim. I 30, p. 243, l. 5. Transl. p. 459

"One should eat after [the food previously taken] has been digested. Otherwise while the "better part" (rasa, opp. mala dōṣa, refuse, waste) of the food previously taken, being still untransformed (into chyle etc.), the better part (rasa) of the food, subsequently taken, interferes (upasṛjati) [with its transformation] and provokes disorder (prakopayati) in all the (three) humours. Entirely (vitiates)

p. 4

rasa we in "chyme", nutritious part of food, the fluid matter which passes from stomach into the duodenum

If, however, one eats, after the food previously taken has been digested, his (in succession) the humors acting each in its own sphere, the digestive fire (agni) being aroused up (udrikta) [by bile?] and appetite being aroused (bubhukṣāyāṃ), all the mouths (mukha) of the ducts (srotas which convey the dhātus) being expanded ..... the hṛdaya (epigastric, through which the srotas runs) being unobstructed (viśuddha) and amenable to (the action of) the wind-humour, the urgings of the internal flatus gases (vāta), urine, and faeces being satisfied, (then) the food, which is taken after the previous food has been digested, does not vitiate the any of the dhātus of the body, but only (serves to) lengthens life. Hence one should eat after the previously taken food has been digested".

N.B. where is the agni? What is it? Is it bile?

The Stomach = Kukṣi

Vim. III 1, p. 244, l. 11. Transl. p. 462

"Any one who eats food, should imagine (kalpayet) that in the stomach belly (Kukṣi) there are three compartments (avakāśāniṣu) for his food; one compartment for the solid (mūrtta) portions of food, one for the liquid, and one for (the three humours) Wind, Bile, Phlegm. For one who takes food equally to this measure the measure thus indicated, is not liable to take any harm that arises from not observing that measure.

Note:
The stomach must theoretically be divided into 3 compartments, viz. a) solid food, 2) liquid drink (which have to be digested), and 3) the three humours (which assist in digestion) which come into the stomach (Kukṣi or āmāśaya) from their own place where they reside. But which are they? Caraka does not say here, nor the comm. (which comm. assist in the digestion of the food)

Note: Rasa, the quantity of food (ahāra-rāśi) (taken at any solid or liquid) time must be regulated by the recipe of these compartments imaginary, in order to preserve one's health.

Division of the Stomach

Vim. III 3, p. 244, l. 22 – Transl. p. 464 Top

"Pressure (upapīḍana) on the stomach (Kukṣi) from the food taken (after eating), absence of obstruction (anavarodha) in the chest (hṛdaya), absence of stitch in the sides (avapāṭana), absence of heaviness (great) (gauravam) in the abdomen (udara, umbilical region), ... and passing (elimination) of stools with ease morning and evening, ... these are the signs of food having been taken in proper quantity.

Division of the Stomach as follows:

In the interior

I Chest = hṛdaya

II Abdomen consisting of a, stomach (kukṣi, epigastric region)
b, (udara) Intestines (umbilical ")
c, bladder and rectum (vasti) hypogastric region which contains faeces

III Sides (pārśvau)

In the Exterior

I. Front (Kostha)

II Back (pṛṣṭha)

III two sides (pārśvau)

Action of humours

Vim. II, 5.6. page 245, l. 7/f. Transl. p. 464 bottom.

"Food taken in excessive quantity causes disorder (prakopaṇa) of all the (three) humours. Wind, Bile and Phlegm having gone into the Epigastric region (āmāśaya, stomach) are exceedingly troubled by the food taken in excessive quantity, and are simultaneously (sahasā) thrown into disorder, and, thus disordered, entering into the (āviśya) untransformed [into chyle] (aparipakva) store (rāśi) of food, become jammed arrested (viṣṭhambhayanti) in the part of the stomach (kukṣi) which they have reached (āśritā), and vehemently (sahasā) escape (prapadyāvayanti) by the upper (alimentary) and lower oesophagus (ūrdhvagā, adhogā) canals passages (mārga). [or by the upper (oesophagus) and lower (intestines) portions of the alimentary canal (mārga)]

N.B. the function of Wind is to propell, of bile to digest, of phlegm to lubricate.

N.K. Mārga, general term, applied to every kind of track or passage or duct [N.B. as for liquids], or canal [digestive] for tube both liquid and solid: alimentary, anal]

srotas = applied particularly] 1. the intestinal canal or tube

dhamani = blood vessels. See next extract.

the humours-ducts as like duct.

Process of digestion or Alimentation.

Vim. II 23, p. 247 l. 12. Transl. p. 470

"Then he (Agniveśa) describes them (descriptes) (the organs) where the food is digested (upapadyate). Between the navel (nābhi) and the chest (hṛdaya) of a living creature (jantu) there is called āmāśaya or the Epigastric region (lit. receptacle of semidigested food). The food which has gone into the āmāśaya whether eaten (bhakṣita) or consumed (khādita) or drunk (pīta) or licked (līḍha) is there digested (upapadyate). The food which has gone into the āmāśaya, when it has reached the state of full (kevalam) digestion (pāka), then in that state of full digestion (pakva) it is conveyed into the pakvāśaya (both lit. the receptacle of full) by means of the dhamanī (lit. the palpitaters)

(the space)

N.B. These extract [illegible] describes simply the course of rasa (chyme) i.e. of the nutritious part of food through the āmāśaya and pakvāśaya, the remainder of its course, i.e. of the waste (mala) is not in the vasti or hypogastric, is not referred to at all. The rasa (nutritious part) is then incorporated by means of the ducts or dhamanī

[viz in the pakvāśaya or Intestinal canal, umbilical.

dhamanī clearly refers to the blood vessels; not to the intestinal canal; but to the ducts of rasa (chyle) and rakta (blood).

These dhamanī conduits carry off the chyme-rasa in its transformed states, or as dhātu, of rasa=chyle, rakta=blood, māṃsa=flesh etc. The dhamanī, accordingly, are the "ducts" for the seven dhātus

14

The Srotas or Canals.

Vim. V, 1, p. 259, l. 15 ff. Transl. p. 502

"As many ~~creative~~ organs (bhāva = utpattimān) varieties of ~~creative factors~~ ~~body-builders~~) of distinctive shape form (mūrtimat) as there are in man (puruṣa), they are various kinds of vessels ~~canals~~ (srotas). For ~~without~~ except (as ~~the~~ vessels ~~canals~~, ~~there all these~~ none of the ~~vessel~~ organs ~~body-builders~~ can ~~do not~~ ~~subsist~~ exist, or cease to exist. For the vessels ~~canals~~ (srotāṃsi) which are the carriers (abhivāhīni) of the Elements (ingredients) (dhātu) which are liable to ~~subject~~ of transformation (transformable), exist for the purpose of carrying them (from one place to another).

srotas is a general term for any kind of vessel (see below), this is here used synonymous with dhamanī duct; otherwise, with canals (alimentary ch)

The comm. p. 58 says that Suśruta distinguishes between dhamanī-sirā-srotas, but not Caraka (na ca Carake Suśruta iva dhamanī-sirā-srotasāṃ bhedo vivakṣitaḥ)

"But some people maintain that Man is the sum total (samudaya) of the vessels ~~canals~~ on account of their extending over the whole (body) and on account of their potency in disordering ~~exciting~~ and ordering ~~alleviating~~ the humours. But this is not so. He whose canals they are, and that which they carry, and that which they produce, and that in which they consist, all that is different from them (i.e. from the canals)".

Note: this is probably ~~a~~ later interpolation, and not very intelligible.
It is probably a interference with the original view of Caraka, who really held that view, which practically follows from what is said above.
Probably read api ca śrotasām eva samudāyaḥ puruṣo bhavati sarva-gatatvāt sarva-sāratvāc ca doṣa-prakopaṇa-praśamanānām.

Clause 2.

"On account of their great multiplicity, some contend that the vessels ~~canals~~ (srotas) are ~~innumerable~~ uncountable, but others say that they are countable. Anyhow of these vessels we ~~I~~ shall roughly (yathāsthūlam) describe ~~some kinds~~ (~~prakāra~~) ~~from the point~~ with reference to their source (mūla) and to the understanding of their (~~capacity~~ liability to) disorder, ~~some~~ a few kinds which will suffice for those who know to recognize ~~the~~ not described ones, and for those who do not know to give a general idea (of the subject). ¶

p. 260, l. 2 ff.

These are the (vessels) that convey ~~the~~ breath (prāṇa), water (udaka), ~~the~~ chyme (anna-rasa), blood, flesh, fat, bone, marrow, semen, urine, faeces, sweat. Again, of [the three humours] Wind, Bile, Phlegm which move through every part of the whole body all the vessels serve as conveyances.

or muscle and adeps, or muscular and adipose tissue

That is, the humours have no particular (comm. p. 59 viśiṣṭa-srotas) vessel, as each of the others has.

~~Clause 3, l. 7 ff.~~

Retranslation

~~Charaka~~ Vim. V, 1 p. 259, l. 15 ff.

"Whatever specialised (nidānāni) organs (bhāva-viśeṣa) there are in man (puruṣa), they all are varieties (prakṛti-viśeṣa) of vessels (srotas). For all ~~vessels~~ organs (bhāva) in man

Whatever things (bhāva) of a ~~tubiform~~ solid form (nidānāni) there are in man (puruṣa) they all are varieties (prakṛti) of vessels (srotas). For all things in man must of necessity exist ~~have~~ the form of vessels, nor can they cease to exist. For the vessels are the bearers (vāhin) of the constitutive elements (dhātu) of the body, ~~for carry the purpose of conveying them from place to place during~~ which are liable to be successively transformed from one into the other, and they exist for the purpose of conveying them from one place of transformation to another.

Moreover all the vessels together, by reason of their going everywhere and circulating everywhere in the body, serve the purpose of throwing the humours (doṣa) out of order and restoring them to order.

~~Now~~ On account of their multiplicity some (indeed) contend that the number of vessels is countless, while others say that they can be counted. However, we shall now ~~describe roughly in a rough way~~ (yathāvat) limit ourselves to describing only a few of them, with reference to their source (mūla) and to the understanding of their liability to disorder. These few will suffice for ~~those who know~~ the learned to recognize those that are not described, as well as for the unlearned to give them a general idea of the vessels.

They are those vessels that convey breath (prāṇa) water (udaka) chyme (anna-rasa) blood, flesh, fat, bone, marrow, semen, urine, faeces, sweat. Again, as to the three humours, Wind, Bile and Phlegm, which ~~move through every part of the body~~ are not restrict [unlike the dhātus] move through every part of the body, all the vessels serve as conveyancers.

N.B. by srotas is meant a "vessel" or "organ", i.e. an organ which both holds and "passes" something.

thus: testicles (vṛṣaṇau) hold semen, and penis (śepha) pass it.

so, gullet (kloma) holds and passes water (udaka).

stomach (kukṣi) holds and passes food (anna)

etc. etc.

These are the dhātus above referred to

this refers to the remark above made

this means the (1) alimentary canal consisting of (1) gullet, 2, intestinal canal
2, respiratory canal.
Of these the gullet and respiratory are in the chest, and the
intestinal belly.

Caraka 3, l. 7, p. 260 Transl. 504

"As to the breath vessels which carry the breath (prāṇa), their source based in the chest (urdhvaga) and their exit is the Great Vessel (mahāsrotas) the Intestinal Canal (mahāsrotas)"

The great cavity of the mouth, called "great," because it is the greatest of all the apertures of the body. This ordinarily the great vessel of the intestines, but it will not suit here, where extra- are mentioned.

prāṇa includes the breath in the lungs and flatus or gas in the entrails
cfg. prāṇa and apāna see Sār. p. 314, l. Transl. p. 19

As the vessels which carry water (udaka) the basis is the palate (tālu) and the Omentum (kloma) [lungs?]

Udaka apparently = saliva.

NB. kloma = lungs p. 7 Comm. p. 60 = [illegible]. Real meaning apparently not known to Comm. Transl. said to be pipāsā-sthāna "place of thirst" (?), but in the context it might be either all the lungs; or more properly probably the gullet or oesophagus.

As the vessels that carry the food (anna), their basis is the Epigastric region (āmāśaya) and (especially) its left side (i.e. the stomach).

The basis of the chyle-carrying vessels is the heart with and its ten ducts (dhamanī).

NB. This contradicts Sūtra XXX, where it is said of ojas, p. 3

Apparently rasa is here meant rasādi, i.e. chyle etcetera; so, Comm. p. 62 Dāmanyo'pi hi rasādi-sthānam bhavati.

The basis of the blood-carrying vessels are the Liver (yakṛt) and spleen (plihan).

The difficulty is (the accord) to Caraka hṛdaya "heart" is the seat of ojas, or the "chest"

The solution probably is that rasa = rasa-vaha includes "ahāra-rasa" the nutritive part of food. This passes into the stomach through the gullet (kloma) which is situate in hṛdaya (Comm. Vim. 60), and is distributed from stomach through the body in the 10 dhamanī or main channels (lymphatic and blood vessels)

cf. Car. Sūtra XVII, 96, p. 99, l. 1 (kloma-śoṣaṇī pipāsā)

With regard to kloma the argument is this — kloma is the "place of thirst"; it is also in close connection with organs lying about the throat. "thirst" is an uncomfortable state, it is alleviated by "water", and in normal conditions. Therefore, there is "water" in kloma, or at least "moisture". This points to kloma being the "gullet"; and to udaka being "drink" (pāna), opp. anna = solid food. Of course, "gullet" might be said to be the "vessel" for anna as well as for udaka. Why not? Answer: "A vessel" does not merely "convey", but also "holds"; e.g. arteries both hold and convey blood. Now the gullet, though it conveys or "passes" solid food, does not "hold" it. But it both "holds" and "passes" water, hence it is the "vessel" for water (moisture). The fact, that it holds "water (moisture) normally is shown by the absence of the abnormal condition of "thirst".

The basis of the fat-carrying vessels are the two vṛkkā (or kidneys), and the vapāvahana (great omentum).

On vṛkkā see Cār. Sūtra XVII, pp. 98, 99, l. 3

Mod. Dr Brown: "Kidneys are high in position in quantity of fat in which they are embedded." Potter p. 176 NB. Sushruta has kaṭi for vapāvahana

The basis of the bone-holding vessels are fat and jaghana (hip bone)

The basis of the marrow-bearing vessels are the bones and their joints (sandhi or ligaments).

Continued

The basis of the semen (śukra) bearing vessels are the testicles and the penis.

The basis of the urine bearing vessels are the bladder (vasti) and the two vaṅkṣaṇa.

What is vaṅkṣaṇa, kidney? One would expect penis as seat or kidney as source. The former is one, the latter 2; but are almost appropriate to fat and semen respectively, but there is probably a hidden ref. to kidney, which lie on both sides of the hips.

The basis of the faeces bearing vessels are the umbilical intestines (pakvāśaya) and sthūlāntra-guda (rectum).

The basis of the sweat-bearing vessels are fat (medas) and the pores of hair (romakūpa)

Clause 10, l. 11 on p. 261, Transl. p. 506.

The avakāśa (spaces) places ~~for the vessels~~ of the visible or invisible elements (dhātu) of the body have the following common (paryāya) names:— Srotas[1] - sirā[2] - dhamanī[3] - rasavāhinī[4] - nāḍī - pantha - mārga - chidra of the body - saṁvṛta and asaṁvṛta - sthāna - āśaya - kṣaya, - niketa.

NB. Dhātu here in a general way, i.e. sveda, (lasikā) etc.

śirā = vein, p. 382, l. 19 (Transl. 884) in abdomen

dhamanī, carotid artery (manyā) Indriya p. 382, l. 5 (Transl. 883), comm. p. 18, gala-pārśva-gate dhamanyau.

Vimāna VI. On Doṣa - humours.

I) ~~Doṣa as three humours, p. 264, l. 17. Transl. p. 575; also p. 337, l. 5 (Tr. 755)~~

II) ~~Combination in saṁsarga of two, and sannipāta of all, p. 264, l. 26. Tr. 576~~
265, l. 4 Tr. 577

~~See also Tr. p. 232, note †~~

~~See commentary. 5 of l. 9. vāta [illegible] of all dhamanī~~

Clause 14, p. 265, l. 13, Transl. 579.

"As to men in their natural state (prakṛtistha) whose humours: Wind Bile Phlegm are in equilibrium, their digestive fire is in the equable normal (sama) state. In persons who are vātala, in whom the Wind is overpowering in the place of fire, the fire is abnormal (viṣama). In persons who are pittala, in whom Bile is ~~pre~~ overpowering in the place of fire, the fire is keen (tīkṣṇa). In persons, who are śleṣmala, in whom Phlegm is overpowering in the place of fire, the fire is mild (manda). Here some say that there is no such thing as a person of equable temperament because of men taking food of dissimilar unequal virtues, but they are by nature (prakṛti) windy or choleric or phlegmatic. But this does not follow. Why? Because physicians hold that [illegible] diseases which attack men of equable temperament. By nature they are healthy. Medicine is

i.e. of equable temperament

i.e. of windy temperament

i.e. bilious or choleric

i.e. phlegmatic or lymphatic

i.e. if there were humour-stricken men by nature, they would be diseased by nature, and the question of restoring to health could not arise at all. The existence of that question shows that equability of temperament is the natural condition of men.

is administered for the sake of restoring men to their original healthy state. It follows that men are of equable temperament (by nature). There are no persons who are wind or choler or phlegm by nature. It is only by reason of the excess of a particular humour, that in some men the one or the other humour is found to be natural, of a particular temperament (dosa). If humours are vitiated, that is not their natural condition. Hence men who are wind or choler or phlegm are in an unnatural (a-prakṛtika) condition. And for these four classes of men (i.e. of equable, wind, choleric, phlegmatic temperament) four different diets (anna-prakṛtāna) are beneficial (hitakara). Three of these classes are diseased (ātura); i.e. the Windy, Choleric, and Phlegmatic. But according to the physician who holds the other doctrine (tantr-āntarīya) they are not diseased (anātura)

cf. p. 41, l. 13 (Tr. 78)

p. 266, l. 8

i.e. the physician who holds that equal temperament is a natural state. See above

A somewhat different Theory

Clause 110, p. 294, ll 5 ff. Transl. p. 593

"For the determination of the particular measure of strength (of the patient) the following (tesām) items (bhāva) beginning with his natural condition (prakṛti). They are as follows: (1) the nature of the semen and menstrual blood (of mother) (śoṇita of mother), (2) the natural condition of the time (of coitus) and of the womb (garbhāśaya), (3) the nature of the mother's food and sport, &c., nature of the modification of the (five) mahā-bhūta. By whatever fault (doṣa) occurs in either singly or jointly, prominently, occurs in any of these natural conditions is affected, by that fault (doṣa) the foetus is affected. It is that which is called the natural fault (doṣa prakṛti) or temperament of men from their foetal beginning (through life). Hence some are windy (vātala) by nature, others choleric (pittala), others phlegmatic, others again with all three humours (tridhātu), in equilibrium (samadhātavaḥ) combined (saṃsṛṣṭa)."

or the natural condition of the womb during the time of gestation.

On the Sāra, Pith or Predominant Element (as in Transl. p. 602 note)

"As to the Sāra, there are eight Sāra in man are laid down for the sake of judging their measure of strength (bala). These are the following: skin – blood – flesh – fat – bone – marrow – semen – intellect.

Text p. 296, ll. 1, 2, Transl. p. 599.

Sāra = prasāda see Comm. Su. p. 484, l. 16 Here is, however, a false reading for rasa see MS. a distinction: prasāda is the nutrient element; but sāra the valuable element. The Tissues (dhātu) are prasāda, because they nourish one another; semen is the sāra, or valuable part of all Tissues; see Comm. p. 484, l. 16 (sapta-dhātu-sāra-rūpa)

On the measurements (pramāṇa) of the body.

Text. p. 297, l. 24 Transl. p. 603.

"As to the measurement, the measures of the body are here laid down, in terms of aṅgula, with reference to height (utsedha) breadth (vistāra) and length (āyāma) in their order.

Parts	height (utsedha)	breadth (vistāra)	length (āyāma)	circumference (parikṣepa or parināha)
(1) foot	4	6	14	
(2) jaṅgha (leg)	18	4	6	16
(3) jānu (knee)	4	4	6	16
(4) ūrū (thigh)	18	4	6	30
(5) vṛṣaṇa (testicle)	4	4	6	8
(6) śepha (penis)	4	4	6	5
(7) bhaga (vagina)	4	4	4	12
(8) kaṭī (waist)	4	16	4	4
(9) vaṅkṣirah (-)	10	[illegible]	4	4
(10) udara (abdomen)	12	10	4	4
(11) dual pārśve (flank)	[illegible]	10	10	4
(12) stanāntara	4	12	4	4
(13) stana-paryante	4	4	4	2
(14) uras (chest)	12	vistāra width 24	4	4
(15) hṛdaya (heart)	2	4	4	4
(16) dual skandhau (shoulder joint)	8	4	4	4
(17) dual aṁsau (shoulder)	6	4	4	4
(18) dual bāhū	16	4	4	4
(19) dual pāṇī	15	4	4	4
(20) dual hastau (hand)	12	4	4	4
21) dual Kakṣau (armpit)	8	4	4	4
22) Kukṣa	12	4	4	4

No. 1. Comm. p. 140 has Daiṛghya.

NB. acc. to Comm. (p. 140, 141) the circumference is to be measured at the middle of the member.

N.B. Vistāra is horizontal extension, utsedha is vertical

No. 12. External female organ: labia, clitoris, vagina etc.

NB. Transl. has "anal canal" p. 603. Comm. does not explain. and gives its length, but text has vistāra, breadth

No. 9. Perhaps Navel?

"between breasts"

NB. Text has paryante "circumference" Transl. has "length or breadth" but perhaps "diameter".

Note: hṛdaya is internal organ, otherwise it could not be measured, hence cannot be "head". No measures of any internal organ are given. Perhaps: "pit of the heart"

Comm. p. 141 says that Prabāhu is aṁsād arvāk from the shoulder down to the Kaphoṇi-paryanta, and prapāṇi is below kaphoṇi

		height	breadth	length	circumference
24,	pṛiṭha (back)	18			
(25)	śiroddhara (neck)	4			22
(26)	ānana (face)	12			24
(27)	āsya (mouth)	5			
28,	cibuka (chin)	4			
29,	oṣṭha (lips & teeth)	4			
30,	ear (karṇa)	4			
(31)	akṣi-madhya (between eyes)	4			
(32,	nāsikā (nose)	4			
33,	forehead (lalāṭa)	4			
(34)	śiras (head)*	28			32
35,	kevalaṃ śarīraṃ (whole body)	84			

Gantth. p. 731. "from arch of teeth to upper end of gullet about 6 inches

Kath. Upanish.

*: called mūrddhan in p. 61, l. 17

Comm. p. 141 explains pṛiṭhaṃ anu grīvāyā upari jñeyaṃ de-
"along the back, from neck upward".

Ad 35, comm. (p. 141) explains: measured from sole of foot (pādatale) up to the top of the head (śiras) the body measures 84 aṅgulī, or 3½ hastau, the body being measured (its own hand. Gantth. length and breadth are the same.

4 4 14 16
18 18 6 16
4 4 6 30
18 18 10 8
10 12 36 8
15 18 12
12 4 2
3 6 23
8 84 24
6 32
16 140
15
12
8
12
18
4
12
5
24
16
4 6

Shārīra sthāna

~~III~~ II, p. 320, ll. 23.24 Verse 1, Transl. 696.

"(~~the seed~~ That) which, emitted in private (raho-visṛṣṭa) at the end of the period of menstruation (rajaḥ-kṣayānte), and ~~having its~~ consisting of the ~~essence in~~ four (gross elements, catuṣpād, viz. earth, water, fire, air) and originating from (food with its) ~~with their~~ six (tastes ṣaḍbhyo, i.e. sour, sweet, bitter, astringent, pungent, saline), by a male person (~~purus~~ puruṣa) of a different gotra, engaged in copulation, ~~enters~~ becomes a foetus (garbha) in women (strīṣu), what is it?"

See my note on p. 24

Verse 2 "That is his ~~seed~~ semen (śukra) which is deposited (in women) for the ~~purpose~~ of producing a foetus (garbha or conception). It is ~~fully~~ provided (pādavat) with the ~~qualities~~ quintessence (guṇa-pak) of (the four elements) wind air, fire agni, earth (bhūmi), and water (ap), and It has its origin in the (food with its) six tastes (ṣaḍ-rasa)

See also p. 332, l. 8 (in Śār. IV, cl. 3) Tr. 737.

"The foetus, being the vikāra resultant (of the combination) of ether (antarikṣa), ^{2}wind, ^{3}fire, ^{4}water (toya), ^{5}earth (bhūmi), becomes the abode (adhiṣṭhāna) of mind or consciousness, cetanā). Foetus, being the combined result (vikāra-samudāya) of the 5 mahābhūta, becomes the abode of consciousness (cetanā), which hence is called its sixth dhātu (element).

For Definition of sixfold man, see Text p. 340, ll. 12-16, and p. 344, l. 24
~~ākāśa~~ ether makes the hollow places.

N.B. ~~The~~ a bodiless soul (which has been wandering in vast space) joins the semen, at the moment the semen enters the womb, ~~coming~~. See Note to Transl. p. 697

Or is it the "ovum" coming from ~~the ovary, which is joined~~ the soul? Not probable. The soul (ātmā), however, is not bodiless, but owns a "subtile" (tan-mātra) body (Trans. p. 707)

But where is that said?

II Text p. 321 Verse 10 If blood predominates in the seed (vija) i.e. combination of semen and menstrual blood (ārtava), then a female is the result.

II Verses 24 and 31. There are 16 ingredients in the make-up of the body (deha)

(1) N.B. The comm. (p. ~~697~~ 47) explains that though the fifth element ākāśa ether is present in semen (which like all other natural objects is pāñcabhautika), yet it does not leave the male's body to ~~enter~~ go into the womb (garbhāśaya), but only the four (remaining) elements, which are active agents (kriyāvat) go, while the fifth element (ākāśa) which is omnipresent (~~vyāpaka~~ vyāpaka), becomes connected (sambaddha) with semen after its arrival (in the womb)".

see also verse 24, p. 322, Transl. 704

This is a rather fanciful explanation of the conflict, that "man" is said to be a pāñca-bhautika (see I 14, p. 309, l. 1) The comm. however quotes another verse to the same effect (from where?) (see v. 29, p. 323):
"Swift as thought (manojavas) [the semen] combined of four elements (bhūta), extremely fine, passes from one body to the other".

(2) N.B. Comm. says "the production of semen is the suitable function of the sweet taste, while that of the bitter (amla) and other tastes is the destruction of semen. This should be understood to be inapplicable to the present case (vṛṣyārth-ōpa-yoga). Again fanciful answer to a contradiction.

Parts of Body derived from Mother see p. 27

III, ch. 8, p. 326, l. 9. Transl. 718.

1, tvac skin
2, lohita blood
3, māṁsa flesh i.e. māṁsa-rasa
4, medas fat i.e. medo-rasa
5, nābhi abdominal-cavity (walls of) [with intestines]
6, hṛdaya chest-cavity (walls of) [with lungs & heart]
7, kloma, gullet (oesophagus) and pharynx [also lungs?]
8, yakṛt liver
9, plīhan spleen } Comm. (Vim. 60) together śoṇita-vaha, blood holder.
10, bukkau (dual) two kidneys (see Nos. 4. 20)
11, vasti bladder place for urine
12, [puriṣ]ādhāna (~~rectum/stomach~~ place for faeces.
13, āmāśaya stomach ~~smaller intestines~~, ~~outer walls~~ (upper abdomen
14, pakvāśaya ~~large intestines~~ ~~walls of~~ (lower abdomen
15, uttara-guda rectum ~~[illegible]~~ (yatra puriṣam avatiṣṭhati)
16, adhara-guda anal canal, ~~[illegible]~~ Comm. Śār. p. 154 (yena puriṣaṁ niṣkrāmati) } see p. 27
17, kṣudr-ântra smaller intestines
18, sthūl-ântra larger intestines.
19, vapā adipose tissue or fat enclosing kidneys ~~of the omentum~~
20, vapā-vahana the "Great Omentum" (gastro-colic)

No. 11, Comm. (Vim. p. 60) is the mūtra-vaha urine holder, also vaṅkṣaṇau (dual) 'the 2 flanks, where the bukkau are situated'

No. 6. Comm. (Vim. 60) also said to be rasa-vaha or "Rasa-holder" in 10 Dhamanī. But what rasa? "Chyle" or ojas. Apparently Suśruta's theory.

No. 6. Comm. (Vim. 60) is the prāṇa-vaha breath holder (lungs), also āpāna or flatus-holder the mahāsrotas

No. 4 The medo-vahana "holder of fat" (Vim. I, ch. 6) is bukkau and vapā-vahana

No. 7 explained by Comm. (p. 60 of Vim.) hṛdaya-stha-pipāsā-sthānam, "the place of thirst, located in hṛdaya or chest

No 7. Comm. (Vim. 60) is an Udaka-vahana holder of water i.e. saliva, a thin watery fluid (Med. Dy.) secreted from 3 pairs of glands in mouth, filled with mucus and lymph (Gerrish 730. 755)

No 7 Black p. 589. The Pharynx is richly supplied by large-sized mucous glands which lubricate the interior of the throat". p. 549 the gullet consists "finally of a strong mucous membrane which closely resembles that of the mouth"; p. 751. "the sensation of thirst is ref. to the back of the throat, because the throat and mouth espec. become parched by evaporation of moisture from their surface".
mucus = glairy fluid, Gerrish p. 73. Lymph = water, ib. 57; also p. 728, the corium (or skin) of the pharynx is particularly rich in lymphoid tissue".

No. 10 See Gerrish p. 806. The kidneys are kept in place by the abundant fatty tissue in which they are embedded and which constitutes the adipose capsule. also p. 49

Accord. to Comm. p. 73, Nos. 12 and 14 identical? Is the text correct?

No. 13, Comm (Vim. p. 60) is the anna-vaha, holder of food, esp. at left side or the stomach

No. 14. Comm. (Vim. 60) is the puriṣa-vaha, so also the sthūla-guda or "rectum"

See Gerrish p. 49, ~~[illegible]~~ or fat converted from liquid oil, whose materials are taken from blood.

No. 19. Comm. to Vim. p. 60: udarasthā snigdha-vartikāyām āhur janāḥ

No 20 Acc. to Comm. p. 73, = taila-vartikā. What is that? See Comm. p. 60 to Vimāna. Vapā is in udara, and is snigdha-vartikā.

See Gerrish, p. 770. the great omentum "hangs downwards in front of the mass of small intestines like an apron and carries in the interstices of its structure an amount of adipose tissue, which varies acc. to the fatness of the individual" p. 49 It means "coverlet" contracted fr. opimentum or operimentum. "Epiploon" = "floating" upon the intestines'

Parts of Body derived from Father

III ch. 9, p. 326, l. 16. Transl. p. 719

1, keśa hair
2, śmaśru beard
4, nakha nail
5, loma hair on body
6, danta teeth
7, asthi bones
8, śirā lymph-vessels?
9, snāyu muscular fasciculi
10, dhamanī 10 ducts of the 7 dhātus or of blood

Not

No. 8. Comm. p. 482 mentions sirā (with snāyu) as śarīra-bandha, network of body; i.e. all the dhātu-ducts make up this network. But what particular ducts are sirā, for snāyu is the duct (vaha) of māṁsa. see No. 9.

No. 9. Vim. 260, are māṁsa-vaha, "flesh-~~[illegible]~~ holding", i.e. solid flesh, i.e. The muscles (or muscular tissue) with its fasciae (sheets) and tendons (extensions) The arrangement is: (1, skin, under it (2) superficial fasciae, (3, deepseated fasciae, enclosing the muscle (or flesh. ~~[illegible]~~ Here māṁsa-vaha are said to be muscle-base (mūla) and skin.

Explanatory Note to Procedure List

Nos. 3 and 4 are ~~mānsa-~~ flesh and fat, not in the form of solids but in the form of liquid rasa. For the māṃsa-vaha or holders (Vim. ch. 6, p. 260) of solid flesh are the snāyu (No. 9 male) and the tvac (skin, No. 1 female) (see Note to male No 9)
i.e. muscle in particular

Nos. 5, ~~13, 14, 17, 18~~. Here No. 5 is ~~the whole~~ the muscular wall of the whole abdomen, or abdom. cavity, or lower part of the Trunk, ~~below~~ before the diaphragm, and including the pelvis; and indicated by its anterior centre the navel (nābhi). Nos. 13 and 14, are the two divisions of the above; the upper (No. 13) and lower (No. 14). Again Nos. 17 and 18 are the contents of ~~the~~ No. 5, the abdominal cavity; viz No. 17 the smaller, No. 18 the larger intestines.

here give Illust.

Nos. 6-7. Here

No. 6. Hṛdaya is the chest, or thorax, or thoracic cavity, that is the muscular walls of it. It contents are indicated by its centre, the kloma, ca. the gullet and windpipe (oesophagus and trachea). The trachea of course includes the bronchi, bronchioles, and lungs. The "heart" is also included, as the specialised sense of the wider term hṛdaya. The latter has two meanings, either specifically the "heart", or generally the whole chest. The hṛdaya as "heart" is said to be the ~~rasa~~ -vaha ~~hṛdaya~~ holder (Vim. p. 260), i.e. the gullet.

Note:- (1) In the list of Vaha or holders (Text p. 260 Vim.) hṛdaya is said to be both prāṇa and rasa Vaha. The former points to the chest, the latter to the Epigastric.

(2) With regard to the Umbilical chord (in Śar. p. 334, l. 12) it is said, that the hṛdaya of the foetus is bound to ~~and draws nourishment from the~~ hṛdaya of the mother (see Ref. on p. 24) through the rasa-vāhinī (channels) This points to hṛdaya being the Epigastric. The place of the foetus is said to be in Kukṣi, Text p. 335, l. 25.

Also hṛdaya is the seat of cetanā; Text p. 352, l. 10, see p. 26

Nos. 8. 9. 10. 11. 12. 15. 16. ~~17. 18. 19. 20~~ 13. 14. 19. 20 are the contents of the lower portion of the Trunk, viz. of abdomen and pelvic cavities.

Here No. 8 (liver) viz. Spleen, 10, Kidneys, ~~13~~ 13 Stomach, 14 Intestines, 11. bladder, 12 rectum, 19. ~~20 omentum~~ fat about Kidneys, 20. great omentum.

Nos 15. 16 and 17. 18. Here No. 15. 16 give two divisions of the ~~rectum~~ anus, apparently the rectum itself, and the anal canal

Nos. 17 and 18 give the two divisions of the intestinal canal, viz. smaller and larger intestines.

or it may be the "upper" and "lower" parts of the rectum itself (see Jeritt p. 752)

24

Mode of birth.

Text Skr. p. 326, l. 10 Transl. 714

The Foetus is a combination of father's semen, mother's blood, and the Eternal Âtman. At the moment when these three combine, an living being (jîva) comes into being.

see also p. 332, l. 6 :- śukra-śoṇita-jîva-saṃyoge tu khalu kukṣi-gate garbho-saṃjña bhavati

p. 328, l. 2-4. Even if semen and blood in proper condition, no foetus arises, if jîva (soul) does not descend to combine

p. 332, l. 8-20 The foetus is a combination of 5 mahâbhûtas and cetanâ (consciousness); altogether six elements } see p. 21

Act of Generation

Text Skr. p. 332, l. 13 ff. Transl. p. 738-9

"If a male (pumân) of undiseased seed (vîrja) proceeds to copulate (mithunîbhâva) with a woman who is in that condition (i.e. free of menstruation), then that most precious element (dhâtuvastu) of his body organically existing assembles from (saṃgatâ saṃgatâ) every limb in the form of semen (śukrabhûtâ). That element seed-element (bîjasaṃjño dhâtuḥ) being thus existing by the organic soul and deposited (as semen in the testicles) is emitted from the body of the man, and through the proper (uttara) channel (pathâ, i.e. penis), and having entered the womb, combines there with the menstrual blood." There (in that combination) the element (dhâtuḥ) Consciousness (cetanâ) begins which has mind (sattva) for its object (manasaḥ) to proceed to take up the various qualities things (guṇa-guṇavat)', that is (clauses 2 to 5) ether and the other elements in their proper succession.

On definition of śukra, see p. 21

Note the difference between vîrja and śukra. The former is diffused throughout everything of the body, the latter is located in the penis-testicles. For this difference the commn. p. 93 quotes a passage (wherein) sarvataḥ-âmṛgatam dehe śukram i.e. the semen is diffused everywhere in the body). But here śukra is identified with vîrja. Vîrja would appear identical rather with ojas, see infra 30 Adhy. But vîrja is also the combination of the father's semen and the mother's blood. See Transl. p. 733, 752

Progress of Gestation

Text p. 333, l. 3 ff. Transl. p. 740

In the 1st, 2nd, 3rd month.

Re. Umbilical chord (See next Extract)

Text, p. 334, l. 22 Transl. p. 744.

"His (of the foetus) hṛdaya, which is born of the mother (mâtṛja), is connected with the hṛdaya of the mother by means of the rasa (connecting-arteries) -tubules (srotas-vâhinîbhiḥ). By means of these their longing arises. bhaktiḥ

The Transl. confounded bhakti with bhaktaṃ. The Comm. p. 101 says bhaktiḥ = icchâ. The text says nothing about alimentation. See p. 26 Text p. 349, l. 2 ff. The chord is called Anarâ

On Ojas in the Foetus

Text, p. 335, l. 18 Transl. p. 749.

"In the 8th month the foetus draws from the mother, and the mother from the foetus by means of the connecting (saṃvāhini) Rasa-holders (rasa-vāhini) mutually (alternately) again and again Ojas on account of the foetus not being full of it.

Note: this shows that ojas is always flowing into the foetus till it becomes full of it in the ~~tenth~~ 8th month. Being now full, any excess returns to the mother, and vice versa.

On Origin of diseases

Text p. 344, l. 24, Clause 2. Transl. 782.

"Now "body" (śarira) is the residence of the ~~consciousness~~ consciousness (soul, cetanā) made up of ~~the~~ modifications (vikāra) of the 5 "elements" (bhūta)" See p. 21

(Cl. 3.) "Now in this "body", when ~~the~~ its constituent elements (dhātu) which maintain harmony of proportion equilibrium (sama-yoga), fall into disharmony (vaiṣamya), then (the body) it gets trouble (kleśa) and destruction (vināśa).

But "disharmony" in the dhātus is the coming of excess (vṛddhi) or defect (hrāsa) in some of them (akārtsnya). ……

(Cl. 5) Hence the object, phalam iṣṭam of the administration (prayoga) of medicine is to permit the coming of a state of healthiness until the harmony of the dhātus ~~to~~ return."

Abstract of clauses ~~11ff.~~ 11–14.

Hence similars should be nourished by similars; flesh by flesh, blood by blood; or if not practicable, by substitutes

Helps to Assimilation

p. 347, cl. 16, ll. 3.4 (Tr. 792)

"Those things (bhāva) which conduce to transformation pariṇāma of food (āhāra) are heat (uṣmā), wind (vāyu), kleda (saliva), greases (sneha), ~~and~~ time (kāla), and judicious correlation" (~~samyoga~~ sama-yoga)

"Heat" cooks pacati (digests); wind propels (apakarṣati); ~~etc.~~ kleda dissolves (śaithilya); sneha lubricates

Notes

Transformed into chyle, blood etc.

"heat" (digestive fire, gastric juice); "wind" to propel from place to place); correl., not to mix unsuitable things in food.

Note: eat slowly!

not

Clause 18, p. 347. Pariṇāma makes food assimilable.

Clause 19. Briefly said: the dhātu (constit. elem.) of the body are twofold: Mala and prasāda, i.e. waste-products and nutrient-products.

p. 347 l. 13.14. "The Māla are those parts which injure obstruct the body; namely the excrescences upadeha (secondary growths) of the body, secretions (pṛthag-janman) which discharge externally (bahirmukha*), and overripe (products) (~~[illegible]~~ paripakva); also disordered humours. prakupita,

The prasāda are rasādi

1.2

[add sweat, etc]

The Comm. (p. 140) says: secretions such as the mucus of the nose (siṅghāṇa), overripe such as menstrual blood (śoṇita).

1.2

*. bahirmukha, are flatus (vāta), (mūtra) urine and faeces (purīṣa)
see Text p. 369, ll. 5.6

Growth of Foetus in Womb

Text, p. 348, l. 12 ff. Transl. 797-8.

1) Bhāravāja says: the Heart (hiras) arises first, being the seat of sense-organs.

2) Kāṅkāyana: the Heart, as seat of consciousness (cetanā)

3) Bhadrakāpya: the Navel, as inlet (āgama) of food (āhāra)

4) Bhadraśaunaka: the pakvāśaya (i.e. large intestines and anus) as seat of Wind.

5) Vādiśa: hands and feet, as instruments of acting

6) Janaki: organs of sense

7) Kāśyapa: unknowable

8) Dhanvantara: all limbs at once and altogether

9) Atreya: agrees with Dhanvantara (l. 20). Heart is the mūla and adhiṣṭhāna of all limbs.

p. 349, l. 3.. foetus supported by the passages (ayana) of the pores (roma-kūpa) and the nāḍī (blood-vessel) of the Navel. That nāḍī is called amarā and that amarā is attached to the heart (hṛdaya) of the Mother. The mother's hṛdaya drenches (abhiṣyandayati) that Amarā of his by means of a number of śirā (ducts) which discharge (rasa, i.e. āhāra-rasa). This rasa of it- (of the hṛdaya) provides strength and colour to the foetus. The six-tastes (rasa) food of the woman who is pregnant (garbhiṇī sapatnī-garbhā strī) is of 3 kinds: it supports herself, gives her milk, and makes the foetus grow.

(12) Apparently "heart" proper, lit. nourishing blood; see p. 3 Or perhaps "chest" or Epigastrium

(13) Apparently the "navel" proper to which the navel-chord is attached or ~~Epigastrium~~ Umbilicus

See also Text 369, l. 19, Transl. p. 854, where umbilical chord is called nāḍī

(See Text 368, l. 15, p. 369, l. 4 where it is the placenta)

Note: Amarā = āśraya mahāsrotaḥ prasaktā hṛdaye, i.e. the Amarā of it (the garbha foetus) is attached to the hṛdaya of the mother. Here hṛdaya would be the placenta or womb. See p. 24, Text 334, l. 12

M. Dy = jarāyu = garbhāśaya or womb
= garbha-nāḍī
= nābhi-nāla

Parts of the body

Text p. 352, l. 10. Transl. 806

"the Hṛdaya (which is the seat (adhiṣṭhāna) of consciousness (cetanā)) is single

Note: p. 332, l. 4, the foetus (garbha) is said cetanā-adhiṣṭhāna bhūta "become the seat of consciousness". Cetanā is one of the six elements

P. 344, 24. the same is said of the body (śarīra) See p. 25, 21

P. 340, l. 13. 16 the same is said of purusa

This is not a proper definition of hṛdaya

Text 352, l. 11. "There are ten prāṇ-āyatana, supports or substrata of breath; but see

		p. 189, l. 13
vital marma	1, murdhan	×
	2, Kaṇṭha	Kaṇṭha
	3, hṛdaya	×
	4, nabhi	⊗
	5, guda	guda
	6, vasti	×
	7, ojas	ojas
	8, śukra	śukra
	9, śoṇita	rakta
	10, māṃsa	⊗

2 śaṅkha, Comm. p. 154, = nābhi, māṃsa

3 marma = [murdhan, hṛdaya, vasti] see Text p. 181, l. 16. 17

Parts of Trunk see p. 22

Text p. 352, ll 14–17. Transl. p. 806.

"There are 15 parts (aṅga) of the Trunk (Koṣṭha); viz.

		Transl.	Commentary p. 154	
Thorax	1, nābhi	navel		lungs (nabhas? sky, air-holder)
	2, hṛdaya	heart		heart or chest?
	3, kloma	lungs	pipāsa-sthāna	gullet (trachea?)
Abdomen	4, yakṛt	liver	liver	liver
	5, plīha	spleen	spleen	spleen
	6, two vṛkka	2 breastglands		2 kidneys
	7, vasti	bladder	mūtrasthāna	bladder
	8, (purīṣ of)ādhāra	region where stools collect		rectum
	9, āmāśaya	region of taken food		~~walls of upper abdomen~~ stomach } bi-partite abdomen
	10, Pakvāśaya	region of digesting food		walls of ~~lower~~ abdomen
	11, uttara-guda	upper anal canal	{ yatra purīṣam avatiṣṭhati	rectum
	12, adhara-guda	lower do	{ yena purīṣaṃ niṣkrāmati	annal canal
	13, kṣudrāntra	smaller intestines		small intestine
	14, sthūlāntra	larger do		large intestines
	15, vapā-vahana	adeps bearing duct	taila-varttikā (see Vsm. p. 60)	Great Omentum

No. 3, Kloma is (Text p. 260, l. 11; Transl. p. 504) an udaka-vaha, water-holder, and is said by the Comm. (Vsm. p. 60) to be hṛdayastha-pipāsasthāna, place of thirst located in the chest. This might fit the gullet, but hardly lungs; unless Indian physiologists thought "lungs" affected thirst! For Granthi disease in Kloma, phthisis, tuberculosis in chest, see Text p. 99, l. 18, p. 98, l. 11, ~~[illegible]~~

No. 2, hṛdaya, clearly is "chest" in comm. Vsm. 60 above; also in text p. 244, l. 22 (see p. 12)

It is the Epigastric in text 211, l. 8 (see p. 10)

It is only 2 aṅgula in height, Text 298, l. 8. It is seat of ojas, Text 226, l. 5 (p. 8)

d. Āmāśaya stomach, called kukṣi in text 244, l. 22 (p. 12)

a

O

Note

The modern division is:—

I Thorax (1, Walls or Cage — nābhi?

(2, Viscera (1, lungs ~~with windpipe~~ — Kloma

(2, heart 5 × 3½ × 2½ (8–12 weight) — hṛdaya

(3, Windpipe and gullet (trachea, oesophagus) — (Kloma)

N.B., nābhi navel is utterly out of place; probably a false reading; perhaps for nabhas "sky with clouds"; if so it may indicate the lungs as air-holder (incl. trachea & bronchi).

Hṛdaya is often used for "chest", so probably here; to indicate the whole thorax, or thoracic cage.

Kloma is always explained as pipāsa-sthāna which can refer to neither lungs, nor heart, but may indicate the oesophagus or gullet, which is affected by "thirst".

Hṛdaya cannot be the "heart proper" (5 × 3½ × 2½), which was taken to be in the abdomen. Diaphragm was not known or it was not noticed and omitted.

II Abdomen with pelvis, both lined of peritoneum.

(1, Walls or Cage. — pakvāśaya (place for digestion) — No. 10

(2, Viscera (1, stomach 12 × 4 — Āmāśaya — No. 9

(2, Intestines { small, large — { kṣudrāntra, sthūlāntra — { No. 13, No. 14

(3, Liver 12 × 6 × 3 (largest gland) — yakṛt — No. 4

(4, Spleen 5 × 3 × 2 (6–10 weight) — plīhan — No. 5

(5, Kidneys 4 × 2 × 1 (4–6 weight) — vṛkkau — No. 6

(6, bladder 5 × 3 — vasti — No. 7

(7, Uterus with vagina (not visible) — ~~No~~

(8, Rectum with anal canal — uttara-adhara-guda — Nos. 11, 12

(9, Great omentum with fatty filling of peritoneum — vapā vahana — No. 15 sac

N.B. No. 7 is 3 × 2 × 1 inches, flattened to 1 inch, cavity mere slit, in normal state lying behind bladder, before rectum. Vagina is similarly placed, not visible, from front and back. Its invisibility no matter accounts for its not having been mentioned.

Number of Vessels

Text p. 353, l. 4ff. Transl. 807

Snāyu 900 viz the māṃsa-vaha flesh-carriers see p. 16

Sirā 700 } these two are names of srotas, see p. 17
Dhamani 200 } their subdivision are 3'056900

Peśi 500

Medas 107

Sandhi 200

30×100000 +900 +56000 = 3'000000 } 3'056,900 minute
900 }
56'000 } particles of sirā, dhamani

comm. p. 158. sūkṣma-pratāna.
another reading 29×100000

Measure of the Dhatu

Text p. 353, l. 18. Transl. p. 809

(1) "Rasa, or chyle, into which food (āhāra) is first transformed, measures 9 añjali or hollow made by joining two palms.

(2) Rudhira or blood, 8 añjali
purīṣa or faeces, 7 "
phlegm 6, bile 5,
urine (mūtra, 4
vasā (vapā ?) (in omentum) 3

9
8
2
1
½
½
21

No. 3 flesh and No. 5 bone are omitted

(4) medas, or fat, 2

(6) majja or marrow, 1
mastiṣka (brain) ½

(7) śukra or semen ½

(8) Ojas, also ½

The reading of ojas is uncertain. Consult MSS.

Notes from Sūtrasthāna

p. 4, l. 15. Man (puruṣa) is a triad of mind (sattva), soul (ātma) and body (śarīra)

p. 4, l. 19. Man, like all animate things, is a compound of the following things (dravya-saṅgraha): of the ~~elements~~ (bhūta), soul (ātma), mind (manas), time (kāla), quarters (diśaḥ) and 5 senses (indriya)

p. 5, l. 14 vāyuḥ pittaṃ kaphaś c=oktaḥ śārīro doṣa-saṅgrahaḥ "Wind, bile, and phlegm are to be aggregate of the humours of the body.

List of 3 humours Humours

On the name of their ducts, see p. 43

See also p. 49, l. 16

p. 35, l. 6 The Digestive fire called Paktā or Cooker.

See also p. 105, l. 12-14.5 (Tr. 200) Prthag 4

Vaṅkṣaṇa-nābhi "pubic and iliac regions" Transl. p. 74. p. 38, l. 25

Pakvāśayaḥ-śiras p. 39, l. 3 (Tr. p. 74)

hṛdi vyathā, p. 39, l. 7, 40, l. 3 ‖ hṛdayōrasaḥ nibandhaḥ (dual) stricture of heart and chest, p. 39, l. 23 (Tr. 77) ; hṛdaya chest; p. 76, l. 2. 7. hṛdayāmaya p. 91, 19 5 chest diseases (Tr. 185) 5 hṛd-roga p. 106, l. 11 (Tr. 212.29) 107, l. 14 (Tr. 215)

jaṭhara "stomach", = abdomen (lower) p. 39, l. 12 (Tr. 75)

hṛd-roga p. 40, l. 3. 9. p. 121, l. 11 (Tr. 246) hṛdayōparodhana, p. 86 l. 2, obstruction in chest.

Kleda impure secretion, p. 146, l. 21. ~~Tr. 372~~ saliva ~~p. 145 l. 24~~ ~~Tr. 310~~, phelgmonous ~~p. 147, l. 8. 15~~ Tr. 313.

hṛdi rūpa, p. 93, l. 18 (see 35)

p. 50 l. 6 "The want of harmony (right proportion, vaiṣamya) among the ~~humours~~ constitutive elements (dhātu) is abnormal condition ~~disease~~ (vikāra); ~~existence~~ of harmony among them is their natural ~~condition~~ or normal condition. The former is felt as pain (duḥkha); the latter, the healthy condition, is felt as comfort (sukha).

Nature of health and Disease

p. 90, l. 18 (Tr. p. 183) "The administrations (kriyā) by which the const. elements (dhātu) in the body are made harmonious (sama), that is the therapeutics (cikitsā) of diseases (vikāra), that is the work of the Physician (bhiṣaj). In order that there be no disharmony (vaiṣamya) among the dhātu in the body, and that ~~their~~ harmony may be arranged (anubandha); for that purpose administration (kriyā) is made

p. 57, l. 20.

"The inference is that from the combination of the six primal Elements (dhātu) comes the birth of the foetus (garbha)

Garbha made of six Elements (dhātu) ~~(dhātu)~~ i.e. 5 bhūta and soul

~~Wind-humours in normal state~~

p. 61, l. 15-20. Tr. 127 "There are three points of attack (mārga) for disease, 1, branches (śākhā), 2, Vital parts (marma) and joints of bones (asthi-sandhi), 3, trunk (koṣṭha). Here the "branches", ~~kapha~~, ~~refer to~~ as also the blood (rakta) and other ~~the~~ consti. elements (dhātu), and ~~to~~ ~~also~~ the ~~skin~~ bark (tvac) are the external (bāhya) approaches of disease (mārga). Again, the vital parts (marma) ~~are~~ ~~bladder~~ bladder, region (vasti), (hṛdaya) ~~heart~~ chest, and ~~skull~~ head (mūrdhan); and The (bones and) joints ~~of bones~~ (asthisandhi)

Done

mūrdhan here means "head" = śiras, see p. 61, l. 26 (śiro-hṛd-vasti)

Note: This is a somewhat obscure passage. The Comm. (p. 185.6) explains that the term śākhā "branch" is here not medical, but ordinary (vyavahārārtha), and that the dhātus, e.g. blood etc [i.e. their net of tubes] which are called "branches" on account of their ~~mentioned~~ ~~as~~ resembling the "branches" of a tree, are so called in order to justify their being called "external" (bāhya). Also, by the term "bark" (or skin, tvac, equivocal) is included the ~~juice~~ chyle (equivocal) (rasa) contained in it. ~~Properly~~ Obviously, ~~because~~ here, the chyle (rasa) [and its net of tubes] is ~~excluded from the~~ not named,

Done

Tub. MS. 458 adds *sirā* ducts (cf. p. 187, l. 3)

p. 61, l. 17, contin.) ~~are~~ that is, the connections (*saṁyoga*) of bones, as well as the attached tendons (*snāyu*) and ligaments (*kaṇḍara*) are the middle (*madhyama*) approaches of disease. Again trunk (*Koṣṭha*) refers to the Great Canal (Alimentary, *mahā srotas*) in medical treatises which is described by such terms as ~~in the~~ "middle of the body" (*śarīra-madhya*), "the great cavity" (*mahā-nimna*), "the receptacle of half-digested and fully digested food" (*āma-pakvāśaya*), etc. That [*Koṣṭha*] is the internal (*abhyantara*) approach of disease.

Note: the idea is that the body is a fortress or town, attacked by the enemy, diseases. There are three concentric lines of defence: 1, the outer (*bāhya*): the limbs (*śākhā*) (arms, legs), and the skin (*tvac*); 2, the intermediate (*madhya*): viz. the (a) network of vessels (*rasādayaḥ*), the (b) vitals (*marma*) being (quarters of town) ~~bladder~~ (~~pubic region~~ pelvis, *vasti*), chest (*hṛdaya*), head (*mūrdhan*), c, skeleton of bones (*asthi*) and their joints (*sandhi*); 3, central (*abhyantara*): abdomen (*koṣṭha*) containing ~~i.e.~~ the ~~intestines~~ stomach (~~small~~) (*āma*) and intestines ~~large~~ (*pakva*).

Accordingly the division of the body is into 3 parts: (see p. ~~33~~ 31)

I, (a) 2 extremities (*śākhā*, upper and lower) and (b) skin (*tvac*)

II, (a) Network of all sorts of ducts or all dhātus with their ducts (*rasādayaḥ*), (b) ~~pelvis~~ (*vasti*) (c) thorax (*hṛdaya*), (d) head (*mūrdhan*), (e) skeleton with its joints (*asthi-sandhi*). The aggregate of Nos. b, c, d are vital organs (*marman*)

III. Abdomen (*Koṣṭha*) containing ~~small~~ stomach (*āma*) and intestines (*pakva*).

Done

Function of ~~Wind~~ Air

p. 64, l. 2.3 25.26
Tr. p. 133

"Of the Wind (*vāyu*, *vāta*), whether normal or abnormal (*kupitākupita*), whether moving within or without the body (*śarīrāśarīra-cara*), what are the acts (*karmāṇi*) while it moves within the bodies (of men) or outside of them (*bahiḥ ca śarīrebhyaḥ*)?" ...... It keeps going the whole ~~the~~ machinery of the body (*tantra-yantra-dhara*), in the (fivefold) forms of breath (*prāṇa*), belch (*udāna*), borborygm (*samāna*), flatus in the circulatory ducts (*vyāna*), flatus in bowels (*apāna*); ~~and~~ ~~maintains~~ it is the originating cause of movements of diverse kinds ...... it blows up (*samīraṇa*) the digestive fire (*agni*)

Commentator, p. 186 says: *kaṇḍarā* = *sthūla-snāyu*, i.e. ligament.

because, on account of its residing in the heart (*hṛdaya*) it is excluded from the term "branches"; it is included under the (following) term "trunk" (*Koṣṭha*). ~~By the same way,~~ argument, In this ~~way~~, by parity of reason, also "blood" (*śonita*) which resides in the liver and spleen, ought to be understood as referred to under "trunk" (*Koṣṭha*); and [as a fact] in the description (*vivaraṇa*) of the trunk it is said: "The places (*sthāna*) of semi-digested and fully digested food, of urine, and of blood (*rudhira*), also the heart (*hṛd*), *unduka* (?), and lung (*phupphusa*) are called "Trunk" (*Koṣṭha*)"""

N.B. The source of the quotation is not mentioned by the Comm. Its explanation is admittedly unsatisfactory; probably *raktādayaḥ* is a false reading for *rasādayaḥ*, but Tüb. has *rakta*.

The Comm. tries to answer two difficulties: 1, that the ducts are included in the branches; and, 2, that the *rasa* ducts are omitted. But ~~both~~ ~~the second~~ are probably due to a textual errors; ~~as the first does not exist at all; for the ducts are not included but excluded from the *śākhā*.~~

There are two errors in the text: 1, read *rasādayaḥ* for *raktā*°, and, 2, place *rasādayaḥ* after *mūrdha* and read *vasti-hṛdaya-mūrdha-rasādīni*, for *mūrdhādīni* makes no sense; there is nothing to be added, the enumeration is complete; also the network of ducts is not external (*bāhya*) in any sense, but "internal" (though not "central").

Done

N.B. *vasti* is pelvis (not "bladder") in p. 98, l. 12, for in p. 99, l. 4 it includes both urine (*mūtra*) and faeces (*varcas*).

See ~~p.~~ 32 on origin of Wind from Air.

In normal state (*prakṛti-bhūta*)

also p. 85, l. 5 = *samādhmāna* a *kukṣi*
see p. 75, l. 24 (Tr. 154) *āmāśayagata vāta*

i.e., 2, flatus expelling upward (*udāna*), digesting in stomach (*samāna*), propelling in circulatory ducts (*vyāna*), expelling downward (*apāna*).

Notice such phrases as (p. 72, l. 8, Tr. 146) *śakṛn*[1]-*mūtra*[2]-*anila*[3]-*udgāra*[4], i.e. faeces, urine, flatus, and belches.

p. 64, l. 7 contin. it throws out (ksepta) the waste parts (mala); it keeps open (bhedha) all canals (srotas), great and small.

The function of fire

p. 66, l. 16 ff / Fr. 136 "Fire (agni), dwelling (antarsaṁ) in bile (causes good and evil), according as it is in a normal or anormal condition (rūpatārūpite): of digestion and indigestion, good or bad vision, proper or improper measure of warmth (in the body), good or bad complexion, etc." — It weakens ojas, p. 72, l. 25 (Fr. 147)

Function of Water

p. 66, l. 22 ff. Fr. 137 "Water (soma), dwelling (antarsaṁ) in phlegm, according as it is in a normal or anormal state, causes good or evil (sukhāsukha): firmness or laxity (of limbs) etc. ... potency (vrsatā) or impotency (klīvatā) etc.

Grahanī, intestines, p. 72, l. 21. 23 (Fr. 147)

Ojas, weakening of by fire, p. 72, l. 25 (Fr. 147)

Kukṣi, stomach, noise in p. 85, l. 5 (Tr. p. 172)

Kṣamā pavana = samāna, borborygmus, in stomach, p. 85, l. 5 (Tr. p. 172)

Humours (see also p. 29)

p. 91, l. 16 "how many kinds of courses (gati) of the humours (dosa) are there said to be?" — Courses of humours.

p. 91, l. 22 "There are said to be three kind of courses (gati) of the humours (dosa)

p. 91, l. 28 "The number of diseases which arise from variation (vikalpa-ja) in the amount (māna) of the humours (either in each, or in relation to one another), is 62. — Number of humour-diseases (see p. 33) | see p. 33

Fr. 199 p. 100, l. 3 "Three fold may be the motions (gati) of the humours (dosa) act, too weakly (hīna) evenly normally (sthāna) or too strongly (vrddhi), in three directions, upwards, downwards, and transverse, and again in three parts (of the body), in the abdomen (kostha), the extremities, the vital parts, and the bones with their joints (sthelton). These — Ways of action of humours

N.B. For the same division of body, see p. 29. 30

cont'n

Tr. 199
p. 100, l. 6

are the three functionings of the humours, considered from the point of view of their own variety. But besides, the attenuation, exhilaration, excitement, and alleviation (i.e. the fact that they act too little, or too much, or evenly) of the bile and the rest depend severally on the six seasons (kāla): the rainy (abhrāgama) and so on. This is a further way of functioning (kṛiti). Moreover, their functionings are seen to be twofold: either normal (prākṛita) or a-normal (vaikṛita). Bile is the heat (agni) (pitta-uṣmā), from this heat the digestion (pakti) of men arises; and that bile, when it is disordered (prakupita) causes many diseases (vikāra). Phlegm, in its natural (prākṛita) state, is called the strength (bala) (of the body); in its disordered state, it becomes waste (mala) product. It is this phlegm which is also called Ojas, and which (in its disordered state) is also declared to be the bestial (pāpmā, cause of evil in the body).

All movements (in the body) are due to Air (vāyu). It is known as the "breath" (prāṇa) in the breathing creatures (prāṇin). Through it (when disordered) diseases (roga) are generated, through it also it (i.e. disease, roga) is kept in check (upanidhyate, sings).

Recognizing (from effect) the entering (anistha) in immediate proximity, a sensible person (ātmavān) should always walk circumspectly, if he wishes to have a non-transient life (anityaram āyuḥ)

N.B. These are Varṣā-Śarat; Hemanta-Śiśira, Vasanta-Grīṣma, See Transl. p. 199, 66

Note: that is, bile is the form of fire which the primary element of fire takes in the body. Uṣmā = agni. Comm. (p. 266) "agni is that which starts the upbuilding (chiti) of the body."

See p. 128, l. 8 in the sense of doṣa humours

Note: because both are "white" things

Note: when the "waste" is not expelled, but circulates in the ducts (bad), it causes the body to be diseased.

(See p. 34 on loci of air = prāṇa)

Note: Upanidhyate is sings, and has no subject; but rogaḥ must be supplied, from the immediately preceding plural rogāḥ; the reference is in the first quarter verses, clearly, to bile in its disordered and normal state. The Comm. (p. 266) supplies the subject rogaḥ and explains upanidhyate by anuśete "lies". But that sense is not justified by the context. Perhaps the real truth is that the text is wrong, and should be upanidhyante plur., an anusvāra having dropped out.

Humours. Continued

p. 105, l. 12. Tr. 210 "Constantly present in the body of breathing beings (prāṇabhṛt) are the three (humours) Wind, Bile, and Phlegm. Whether they are in a disorder or in their natural state (order), that a learned man (paṇḍita) should understand. Exertion, inspiration and expiration, any activity, regular flow of the constitutive element (dhātu, in their ducts); regular evacuation of waste matter (galimal), these are the ~~fund~~ effects (karma) of Wind ~~in a healthy~~ ~~when it acts in harmony with the other humours~~ when there is no disturbance of its natural condition ~~state~~ (avikāraja) - Vision, digestion, warmth and softness of the body, hunger, thirst, good complexion, cheerfulness, intelligence, these are the effects of Bile ~~in a healthy~~ when it does not act in unnatural conditions. ~~State~~ Greasy matter (sneha) of the body, synovia (of the joints), firmness, heaviness, sexual potency, bodily strength, endurance, patience, and contentment, these are the effect of Phlegm ~~in a healthy state~~ when it does not act under unnatural conditions. The contrary of these effects ~~may be taken to be~~ ~~are~~ is the sign of disorder, either attenuation or excess, in Wind, Bile and Phlegm. If ~~there is disorder~~ in the harmonious action of the humours Disturbance of the natural ~~(or harmonious)~~ condition of the humours is a sure sign of their excess. In this way it may be diagnosed ~~whether~~ ~~any of~~ the humours are in their ~~[illegible]~~ natural condition, or in deficiency, or in excess."

Note: by prakṛti is meant the natural state; and the natural state consists in a humour being its proper, ~~[illegible]~~ proportionate amount, i.e., in being, in that amount, in harmony with the other two humours. The points hang together; if a humour is not present in its proper amount (too much or too little), it is out of harmony with its fellows.

Humour-caused Diseases, see p. 31)

p. 109, l. 22, l. 26, Tr. p. 220 "There are two ~~causes~~ sources (kinds of origin), see text p. 185, l. 10 (prakṛti) of diseases by reason of their distinction into accidental (āgantu), i.e. "come from without or born within", and constitutional (nija) ..... The source of the "inborn" (nija) diseases is disarrangement (vaiṣamya) of Wind, Bile and Phlegm. .... In the case of an inborn

p. 110, l. 5. 6 disease (in) Wind, Bile, Phlegm ~~in which~~ that the first disarrangement (vaiṣamya) takes place; afterwards they ~~[illegible]~~ cause pain (vyathā) to arise (in ~~some~~ those parts of the body), in which they prominently reside).

Loci of the humours as "causers of disease" (not in normal state)

p. 110, l. 6 ff. Tr. 221 Those particular places (sthāna-viśeṣa, loci) in which the three humours reside, are the following:—

Contin.

~~Part III~~ p. 6, Tr. 221 ~~110~~ 110 The loci of the Wind are:—

1, bladder (vasti)

2, rectum (purīṣādhāna)

3, ~~loins~~ Lower abdomen (kaṭi)

4, two lower extremities (sakthinī)

5, two feet (pādau)

6, bones (asthīni) generally [because of the central hollow] -

But, more especially it is the intestines (pakvāśaya, i.e. No. 3, kaṭi, lower abdomen) which is the locus of Wind.

// The loci of Bile are:—

1, sweat (sveda)

2, ? (rasa) what is it? Tr. "saliva"?

3, ~~blood~~ lasikā (?) (see p. 8, 2)

4, blood (rudhira) [because it is rasa, lymph + bile]

5, stomach (āmāśaya)

but more especially it is the stomach (āmāśaya) which is the locus of Bile.

The loci of Phlegm are:—

1, thorax (uraḥ)

2, head (śiraḥ)

3, neck (grīvā)

~~3~~ 4, upper extremities (parvāṇi)

~~4~~ 5, stomach (āmāśaya)

6, fat (medas)

but ~~the~~ more especially it is the thorax (uras) which is the locus of phlegm.

p. 110, l. 12 "Moving through the whole body Wind, Bile, Phlegm, according as they are in harmony or disharmony, cause good and evil throughout the whole body. When in harmony they produce growth, strength, good complexion, and cheer, but when in disharmony, they produce those evils which are known as diseases (vikāra):.... ~~The [illegible]~~ number of those caused by Wind are 80; those caused by Bile are 40, those caused by Phlegm are 20.

l. 13

p. 186, l. 1 (Tr. 396) "Wind, Bile, Phlegm, being disarranged in ~~their~~ particular ~~loci~~ places of the body cause there particular diseases"

see p. 32 see p. 6

NB. Air penetrates wherever there is a cavity in the body and its organs. Hence "fractures" caused by wind p. 111, l. 19, p. 125, l. 13

Hence "enemata" the foremost of all remedies, p. 111, l. 24-25; because they enter the intestines (pakvāśaya).

Apparently all rasa, or prasāda, lymph etc. cf. p. 128, l. 7 (Tr. p. 260), see p. 37

Hence "purgatives" chief remedy, because enter stomach, p. 113, l. 1

Note: We have here a division of the body with reference to the potency of the humours for disease.

I Wind in ~~Upper~~ Lower Body: a, feet
b, lower extremity
c, lower abdomen

II Bile in Middle Body: upper abdomen.

III Phlegm in Upper Body: a, thorax
b, neck
c, upper extremities
d, head.

Hence "emetics" chief remedy, p. 113, l. 25, for here (p. 114, l. 1) āmāśaya is mentioned as chief of loci; and comm. p. 295-6 accepts both as equal.

Causes of health and disease

See also p. 47 verse 35

~~p.113, l.18 Characteristics of Phlegm are whiteness (śvaitya), coldness (śaitya), see also l.20 (cf. p.145, l.14 on sweet taste) also p.193, l.11~~

Character of Phlegm:

Tr.322
~~p.184, l.10 "From the waste of food (kiṭṭa) come urine, faeces, sweat, Wind, Bile, Phlegm."~~

Origin of Humours (see p. 42

~~p.187, l.1 "When the humours (mala), residing in the senses, are disarranged.~~

Synonyms of Humours

5
Mala = doṣa. See p. 32 note, and p.128, l.8 p.187, l.1
p.100, l.13. p.455, l.22; p.569, l.11 (Tr.1585)

Influence of Vessel on humour
see p. 15

~~p.259, l.20. "All vessels serve to disorganise humours and restore them.~~

(Tr.147)
~~p.72, l.23-25 The Ojaslike fire in [illegible], blazed up by reason of bile and oil taken, sublimates (prakṣārayati) the Ojas, because ojas is phlegm, p.100, l.13. (Tr.200)~~ 32

Sublimation of Ojas to phlegm humour
Comm. p.210, l.9.

~~p.318, l.11. Contact with senses provocative of 3 doṣas~~

(Tr.795)
p.347, l.15 – Wind, Bile, Phlegm only when excited (prakupita) are not only ~~[illegible]~~ malas, but cause disorder (ib., l.19 Tr.796)
See also p.238, l.21

N.B. Bile and Phlegm as integral parts of the body are advantageous (prasāda, bala); it is only when they are disordered that they become mala; see p.100, l.13 (Tr.200) with regard to Phlegm; and ~~[illegible]~~ p.100, l.4 with regard to bile.

It is the same with air.

~~p.238, l.20. Tastes improperly used lead to disorder of humours~~

See p.456, l.23-25

~~p.452, l.5.6 (Tr.1105) doṣa acts only in certain circumstances~~

p.687, l.3. Hikkā arises in pittasthāna, which according to Comm. on Nidāna p.104 is liver and spleen.

Locality of Bile

~~For Wind humours see p.687, l.21~~

~~p.718, l.19.20 Bile is fiery (āgneya)~~

p.655, l.16, 18 Place where Bile & Phlegm originate: latter in duodenum, former in stomach, as results of digestion, so that liver and ~~bile~~ spleen are ready to turn rasa into blood.

Dhātu

Enumeration

p. 145, l. g. Tr. 309 Among them (śārīra) the purest (śuddha), by reason of its harmony with the body, promotes lymph, (rasa), blood (rudhira), flesh (māṁsa), fat (medas), bone (asthi) marrow (majjā), ojas lymph, and semen (śukra)

Note the position of ojas before śukra, in prose.

p. 147, l. 11. [Tr. 313] śuddha śārīra (śukla) drives them up; but ojas is omitted here.

p. 184, l. 12. The (prasāda) prosperous dhātus are chyle (rasa), blood (rudhira) flesh (māṁsa), fat (medas), bone (asthi), marrow (majjā) semen (śukra), lymph (ojas).
Also the material substrate (dravya) of the 5 senses.
The waste (mala) dhātu are of the flairy fluids (prakṛti) which lubricate the joints of the body, and others.

Note: dhātu has the general meaning of 'constitutive element'; but among them, some are organized, or tissues, others are merely organic. But prasāda "prosperous" and mala "waste" do not quite correspond. Prasāda are those which are active (in volved in) metabolism: Nos. 1, 2. 3. 4. 5. 6 (including lymph, but not No. 7) of Mala are those which do not take part in Metabolism, but are secretions, e.g. No. 7, and the fairy fluids; and those referred to by "others"; these according to comm. (p. 484, l. 6) are menstrual blood (artava), milk (stanya) and other, viz. products of the sebaceous glands (to which really also milk belongs. These products are sneha, which the comm. the Gramm. (481, l. 21) indeed counts among mala, but as apparently produced from kiṭṭa; but there is probably a misunderstanding; for there is (1) kiṭṭa of rasa = waste part of food; and (2) kiṭṭa = waste part of rasa = waste part of chyle; now mūtra is a waste product No. 1, but sneha (and milk) is waste No. 2, of the dhātu majjan.

see p. 1

Blood

Tr. 185
p. 92, l. 9 "Wind and the other (humours, vātâdayaḥ) become disordered (prakupyanti), the blood (asṛa) of the head becomes disvitiated (pradusyati).

Blood in head, diseased.

Tr. p. 250
p. 126, l. 15. "It is health (rôgânâṁ) blood (medhira) which brings about strength, complexion, comfort, and long life, for the breath (prâṇa) of the breathing creatures (prâṇi) is dependant on blood (sonita)

Causes of health and disease.

p. 127, l. 16 All these (abovenamed) diseases should be known to be due to Blood.

Tr. 260
p. 128, l. 7 When the vessels carrying blood, and those carrying the disordered humours (kupitâ malâḥ) affect the so-called rasa (i.e. chyle etc), either separately or together, then diseases become generated.

Ojas

Tr. p. 191
p. 95, l. 23 "Upon the attenuation of both phlegm and wind, Bile, in its course, combines with ojas (lymph), and causes general lassitude (glâna), weakness of the senses, thirst, fainting, and loss of motory power (action)."

Effect of bile on Ojas

Tr. 192
p. 96, l. 3 Now (The three humours) Wind etc, (The 7 dhâtus), Chyle (rasa) etc, (the various kinds of) waste products (mala) and of lymph (ojas) here may be attenuation. The [illegible] Râmayaṇa (Lakṣaṇa) of the attenuation (sainkṣîṇa) of the three humours, Wind (anila) etc has now been given.

Ojas, distinguished from Dhâtus

N. B. The whole section in Dr Saraswati's Comm. p. 508, l. 15 – p. 509, l. . .

See Comm. p. 484, l. 16-19. "Though ojas is the valuable part (sâra) of the 7 tissues (dhâtu), and is therefore included among the constitutive elements (dhâtu), yet it on account of its being the creator (kartṛ) of the living body (prâṇa-dhâraṇa), it is placed separately. Some who maintain that it is produced from semen, the natural fluid that it is an eighth tissue (dhâtu), but in refutement (abhidâ) it is said, here comes a quotation on

The Nature of Ojas

Tr. 193
p. 96, l. 25 "Upon the attenuation (kṣaya) of Ojas man becomes weak and subject to fears and anxious thoughts, his senses become perturbed, he looks ill, he is cheerless, dried up, and wasted. That while, slightly

Gerrish, 57
Robb: "Lymph consist of a clear, fluid portion, and a cellular portion; the latter are leucocytes or "white" cells." In a mixture chyle it is milky-looking. The tunics of its vessels consist of white and yellow fibrous tissue (Robb

Lymph is derived from blood (Blake, 472). "Lymphatic discharge ultimately finds its contents into the blood circulation once more by opening into the jugular veins in the root of the neck. Lymph possess the power of clotting and forming fibrin pellets or colourless fibrin (473), which again organizes into fibrous tissues either white or yellow, and this again so to organize into (1999) muscles.

34-38

p. 96, l. 25 continues and red, slightly yellow (thing) which is found in the heart (hṛdaya), that is called the Ojas ~~in the body~~ ..... Unless it perish ~~in the body~~, the latter does not perish.

Note: Dr comm. (p. 260) here explains that the nature of ojas is difficult to understand (ojaso durjñeyatva). It is white (śukla), etc.; white is the main colour; red and yellow are only subsidiary; ... Ojas forms the sum total of all the dhātu (sarva-dhātu-samudāya-rūpa), hence it is included (samāviṣṭa) in the seven dhātu; and there can be no conclusion that it is an 8th dhātu and so forth; as Suśruta says: the great force (tejas) of the seven dhātu from rasa to śukra is ojas

~~Note: on ojas = phlegm, see p. 32~~

p. 156, l. 26 Note that in the list of diseases in the dhātu, causes of the humours, ojas is not mentioned, between śukra and indriya. In connection, however, see p. 184, l. 12, 13, where ojas placed between śukra and indriya.

p. 226, l. 5: "Rasa which is placed in the heart" (hṛdaya-sthāyī rasaḥ), accordg to Comm. p. 83 = ojas.

Identity of Chyle and Lymph.

p. 193, l. 1 (Tr. 412) "In it is centred that life-holder (dhāri), the existence of which is recognized (vijñāna) by its responding to touch."

Dhāri, a name of Ojas

Comm. 570, l. 17 explains that dhāri is either = jīvita life, or = ojas.

35
37

Vata

(Fr. 185)
p. 92, l. 5.6

"The place where the ~~various kinds of~~ breathings (prāṇāḥ pl.) of the mere (breathing creatures (śarīra-bhṛt) are resident (āśritā), and also the all the ~~organs~~ (sarvêndriyāṇi), which is the best (uttamāṅga) of all the members (aṅga) (of the body), that is called the Head (śiras)"

(N.B. This is not all)

Dysfunction of head as receiver of life and sensation.

N.B. This includes the neck (grīvā) see p. 92, l. 9 (Fr. 185)

N.B. Prāṇāḥ plur. must refer to inspiration and expiration; not to the 5 kinds, for some of them are placed elsewhere.

3)

(Fr. 186)
p. 92, l. 23

"The network (śirā-jāla) of arteries throbs and the neck (śiro-dhara) pains (śūlyate) (in head-diseases)

Network of Arteries

(Fr. 187)
p. 93, l. 18

"In the chest (hṛdi) when troubled by wind (vātâtura) there is 'râle', and at the time of digestion (jīrṇe) there is excessive pain."

Rattle in Chest = Hṛd

Also other symptoms of chest diseases: hṛd-dāha p. 93 l. 21

(Fr. 187)
p. 93, l. 25-94

"In a chest-disease (hṛdroge) due to phlegm the thorax (hṛdaya) is benumbed (stimita), feels as if it were ~~in a~~ held in a wet compression (klinna-bhārika), pained (pīḍita) by ~~loss of sensitiveness~~ sleepiness (tandrā) and ~~want~~ loss of appetite (aruci), and feeling as if pressed down under a stone (aśmâvṛtta)."

Thoracic diseases, hṛd-roga.

Pulmonary Phthisis complicated with Pleurisy.

~~The patient~~ A patient who is ~~unable~~ impudent enough (duratma) to indulge in preparations made of sesame seed, milk, molasses, and similar articles, in him arise (yellow cheesy) tubercles (granthi). In a particular vital part (marmâikadeśa, lung) a sero-fibrinous fluid (sasnigdham rakta) supervenes in the chest, and from this sero-fibrinous fluid (sasnigdhāt) worms arise in the afflicted patient the particular vital part of, and having arisen, the creep about and ~~gnaw~~ (irritate) gnaw it. ~~He believes~~ (feels, as if) ~~that himself~~ his chest ~~to be~~ were stung (with pins ~~cut with~~), and cut with a knife, and greatly tormented with an outbreak of itching."

Granthi appear like the ~~tuber~~ yellow, cheesy knots of tubercle. (and breaking down, leave a ragged cavity) this form in phthisis (see Black, p. th phthisis, p. 179.

sasnigdha-rasa, is the effusion of sero-fibrinous fluid in the pleural ~~sac~~ cavity, i.e. the sac between the two pleurae or serous membranes, which line the outside of the lung and the inside of the thoracic cavity. see Black, p. 595

These are symptoms of Pleurisy, see Black, p. 597

*** Not the tubercle bacilli! They are called hṛdaya-rasa in p. 108, l. 9 (Fr. p. 217)

Continn.
(Fr. 196)
p. 98, l. 10ff

"Then [in circumstances previously enumerated] there arises the ~~a~~ very painful, deep-seated Granthi (formation),

36 40

Comm. p. 298, l. 11 in the thorax (hṛdaya[a]), or ~~throat~~ larynx (kloma[b]), or liver (yakṛt) or splen (plīhan), or ~~stomach~~ abdomen (kukṣi[e]) or kidneys (vṛkkau), or ~~in the~~ navel (nābhi[g]) or loins (vaṅkṣaṇa[h]) or ~~bladder~~ pelvis (vasti[i])

a, Is pleura (empyaema) or phthisis.

b, laryngitis (Black, p. 753)

c, Fatty disease of livers (Black 450), but no abscess!

d, rupture? Symptoms absent!

e, Tumour, ulceration

f, renal colic, suppuration (Black 429)

g, Indigestion (Black 377) with the symptoms, but no abscess!

h, Inflammation with difficulty of micturition (Bl. 92)

Prāṇa. Place of.

(see p. 30, 33, 34, 35)

Comm. p. 289 It quotes the following ~~verse~~: The lores of 'Breath' (prāṇa) is the Head (śīrṣa), chest (uras), throat (kaṇṭha), tongue (jihvā), mouth (āsya), ear (karṇa), nose (nāsikā).

Comm. p. 324 But here he quotes a different statement: — "They ~~call~~ enumerate 10 loci (āyatana) as those in which prāṇa is established, viz. the 2 temples, the three Marma, throat, blood, semen, ojas and the anus."

Here prāṇa itself has several meanings of 5 prāṇas, which are

N.B. This is quoted by Comm. p. 289, l. 13, as working the "areas" (āyatana) or loci are:

(1.21)	1, two temples (śaṅkhau)	read śākhe	prāṇa	1, 2 Extremities (śākhā) (upper and lower)
(3.45)	2, 3 Vital parts: a, pelvis (vasti)		apāna	2, 3 vital parts (marma) a, vasti
	b, chest (hṛdaya)	p. 61, l. 17	samāna udāna	b, koṣṭha
	c, head (mūrdhan)	ante p. 29	prāṇa	c, mūrdhan (a, śīrṣa)
(6)	3, Throat (kaṇṭha)	read Koṣṭha	udāna	3, Koṣṭha
(7)	4, blood (rakta)		vyāna	4, 5, 6 raktādaya
(8)	5, semen (śukra)			
(9)	6, lymph (ojas)			
(10)	7, anus (guda)		apāna	

śākhe marmatrayāsthīni rakta-śukrojāṃsi koṣṭhaḥ
1 2 3 4 5 6 7 8 | 1 1 3 4 5 6 ..

koṣṭho rakta-śukrojasī
1 2 3 4 5 6 7 8

Hence in the quotation: Lex Iudex s.v. prāṇa etc.

Note: the primary element vāyu appears in the body as "breath" prāṇa, as well as a humour (vāta). Of prāṇa there are five kinds, one of these (the first) is prāṇa proper, "breath", which resides in the places here mentioned. But of air as vāta, the special places are: Kaddereli (see p. 33, 34)

Note: Air in man is prāṇa qua driving powers of the mechanism of motion, but vāta as cause of diseases.

Ch. p. 61, Cl. 15 ff

(p. 33) prāṇa (breath) udāna (belch), borborygmus (gamana, digesting), gamana (locomotion), vyāna, flatus in duct, and apāna flatus

p. 192, l. 19.20 (Tr. 411) "To the "Price" (artha, i.e. priceless organ of the body) are attached 10 (carrying vessels, vaha, see p. 192, l. 5) which have for "great" (mahā-mūlē) beginning and also spread from the "great" (mahā-phalē) organ. That is the heart (hṛdaya), also called by the wise the "great" (ord. organ, mahat) and the "Price" (artha).

(2) The 6-limbed (sadaṅga) body (aṅga), installed (thinking, vijñāna), sensations (indriya) and their five objects (pañcake, i.e., sound etc), the soul with its qualities (guṇa-guṇa), consciousness (cetas), thinking (cintya), (all these) are based (samāśritā) on the heart (hṛd).

(3) For all these the heart (hṛdaya) is held to be the fundamental (prati-ṣṭha) by thinking persons who think out a thing to serve as the basis, just as the "top-beam," serves to hold together the whole wooden structure of a house.

(4) Any injury to it causes swooning, a breath of it causes death. (dhāṇi) Life, which is recognized by the presence of feeling (sparśa) is centred in it. (dhāṇi) That life, the existence of which is recognized (vijñāna) by the presence of feeling (sparśa) is responsive to touch (sparśa)

(5) It is the locality (sthāna) of its quintessence (para) lymph (ojas). In it is the sum-total (saṁgraha) of conscious life (caitanya). Hence [by physicians or important] the heart (hṛdaya) is said to be the "great" (mahat) organ and the "Price" (artha) organ.

(6) By reason of it being their great source (mūla), the ten (ducts of lymph- (ojas)) are called the "Great-sourced ones" (mahā-mūlāḥ) which spread (vitanvantē) throughout (samantataḥ) the body.

(7) It is from this lymph (ojas) that all embodied creatures (dehinaḥ) are kept alive and flourishing (vardhayanti) (prāṇita); without (rte) it the life of any beings (bhūta) cannot exist.

(8) It is this (lymph) which is the principal agent (kāra) at the first moment (ādau) of impregnation of the embryo (garbha) and which is the "operative" element (rasa = prasāda) in the "formed embryo" (garbha-rasa).

1 The 6 limbs are: 1, head, 2, trunk (3.4) upper extremities, (5.6) lower extremities.

2 Something which has limbs, an organized living body.

3 The soul "by itself, absolutely, has no qualities; when it is embodied, it is modified, related, by qualities: happiness (sukha) etc. So Comm. p. 586, l. 9.

4 "Top-beam" corresponds to "keystone" of an arch. It is called adaka popularly. So Comm. p. 509, l. 1

5 Dhāṇi = jīvita, life, see p. 4, l. 7, "that which upholds the combination of soul and body with its senses." Or = ojas, Comm. 510, l. 18

6 The correct text is: yad dhita-sparśa-vijñānaṁ dhāṇi tat tatra saṁśritam, i.e. that which "retainer" (of life) which is recognized by the presence (dhita) of the sensation of touch, that is centred there (i.e. in the heart); i.e. the fact that a body is alive can be recognized by its responding to touch. Touch is the representative or essence of all sensation. see p. 69, l. 8 (Tr. p. 124); and p. 310, l. 26 (Tr. p. 2) Perhaps reference to touching the pulse.

7 Hṛdaya used psychologically, p. 226, l. 2 "the heart is trembles by thought of sorrow".

8 This shows that it is the lymph-vessels which are throbbing, not the blood-arteries. But probably the various ducts were not clearly distinguished from one another. May it be due to the serum observed in dissecting the dead body.

[*or by medical science; read cikitsite]

8 These are the dhamanī; comm. p. 509, l. 14, = visarpaṇāt, or pūrṇāḥ vāhyena dhātunā, i.e. they spread, or are swollen with the stream of dhātu. (Cf. Comp. derives from dhmāna "swelling". See the Sumerian other points in the Med. Sy.) The Comm. 511, l. 1 prefers the second derivation: dhmāna = pūraṇa.

(Comm. 510, l. 2 ff.) The idea is this: the concourse of semen and ovum (śukra-śoṇita-saṁyoga) is that on which life depends (jīvādhiṣṭhāna) or with which life starts; at that very first (ādau or °mātra) ojas is the kāra (principal agent); the embryo (kalala) is the favourable result (rasa) of that concourse for that result (garbha-rasa), ojas is the "operative element" (rasa = prasāda). That is: the embryo (garbha) is a combination of two (semen and ovum); but the result, operative (rasa) of the two is ojas. Hence semen = ojas.

(8) It is that which is the chief agent (sāra) at the beginning (ādau) of the formation of the embryo (garbha; and it is also that which is the operative element (rasa = prasāda) from among (or distinguished from) the operative elements (rasāt) of the (formed) embryo (garbha-rasāt); being that which enters the heart (hṛdaya) (of the embryo) ~~at the start~~ as it begins (purā) to exist.

The idea is: (Comm. 570, l. 1-9): there are 3 factors in the formation of the embryo (garbha): semen, ovum, ojas; at the start (ādau) of that formation, ojas is the chief agent (sāra) among the three; and if it is also ~~then the embryo has formed, ojas is~~ the (first) rasa or operative element (prasāda) among the operative elements of the embryo (garbha-rasāt); for it ~~first~~ enters the heart (hṛdaya) (of the embryo) which is the first to form in the embryo.

(9) Unless it perish, there is no perishment; it is the sustainer (dhārī) (of life), dwelling in the heart (hṛdaya). It is the operative element (rasa = ~~prasāda~~ sāra) of the body, its oiliness (snehaḥ); it is that on which the life-breaths depend (prāṇāḥ prakṛtiṣṭhitāḥ)

hol
As to dhārī, see anth verse 44. See also p. 96, ll. 25.26 and p. 37.38

* Cf. anth, v. 8, garbha-rasa, the operative element of the embryo.

~~(10) The rivers (sthala) of many diverse kinds~~

~~(11) The ducts springing from it~~

(10) ~~Because they are the ducts which~~ have it (ojas) for their contents (phalaḥ), or ~~which~~ because they spread (phalanti) ~~from it (through the body)~~ in various directions (bahudhā), for that reason the ducts (of the vital force, ojas) are called Mahāphala*. By reason of their swelling (dhmāna) they are called the swollen (dhamanī), by reason of reason of their flowing, they are the currents (srotas), by reason of their running, they are called the sirā.

* That is: those that spread from mahat = heart; or those that have mahat = ojas for contents. So Comm. 520, l. 12-15

(11) Any one who (wishes to) protect that "Great" organ (viz. the heart), those ducts that spring from the Great organ (mahāmūla), and that Vital Force (ojas), he should particularly avoid all causes of (mental pain) pain to the mind (manas)

(12) Whatever pleases the heart (hṛdya), whatever promotes vitality (ayuṣya), whatever ~~as~~ favours the currents (srotasām prasādana), all that he should ~~practise~~ pursue purposely (iṣṭhataḥ) Tranquillity (of mind) and Knowledge (jñāna, Comm. of tattva-jñāna).

Theory of Ojas, or the "Vital Force".

See Adhyâya XXX of Sûtrasthâna, p. 192, verses 1- ...

(1) Especially, verse 8, according to which ojas is the chief (sâra) among the 3 factors of the formation of an embryo (garbha), viz semen, ovum (i.e. śonita, menstrual blood), and vital force (ojas); being the chief agent, the first organ of the embryo which is formed is its heart (hṛdaya) in which the vital force (ojas) takes up its residence, hence also it is the first (operative element) (rasa) which comes into existence in the living embryo, the other operative elements (chyle, blood etc) arise later on, when food (âhâra) begins to enter into the embryo through the navel-chord.

(2) The vital force (ojas) which is thus first established in the embryo's heart, its primal organ, hence distributes itself over the whole body, (see XXX, v. 6) through 10 ducts (ojo-vaha, dhamanî), and thus the life of the (embryonic and growing) body is kept up and flourishing.

(3) On the other hand, the nourishment (âhâra) which is received by the embryo, through the navel-chord from the maternal body, and taken in by way of the mouth, is transformed, within its body, in 7 successive stages, into chyle (rasa), blood (rudhira, rakta), flesh (mâṁsa), fat (medas), bones (asthi), marrow (majjan), semen (śukra), as the food (âhâra) passes through the different parts of the body, separately in form of chyme (forming the "useful part" its "useful parts" (rasa, âhâra-rasa, prasâda) from its refuse (Kitta) or waste parts (mala)

[Regarding details of this change, transformation, assimilation, or metabolism, see the chapter on "Function of Food"

(4) The Vital force (ojas) was considered to be something material, in so far as it existed within the heart, see p. 96, ll. 25-26 where it was "that white (śuddha), slightly red (rakta-tṛsat), and yellow (sa-pîtaka) thing which is found (dṛśyate) in the heart (hṛd), and called ojas in the body, - unless that perish, the body does not perish. (see p. 37.38)

Cf. the statements about "generative elements" of embryos on p. 24 25 24-

N.B. This seems to point to "dead blood".

Notes from Grahaṇī in Cikitsā

p. 655, l. 4 (Tr. p. 1411) "Vital force (ojas), energy (tejas), ~~bodily warmth~~ ~~animal~~ fires (agni), life-breaths (prāṇāḥ) have the ~~digestive fire~~ ~~fire (warmth) of the body~~ (dehāgni) for their cause. This fire being slackened (śānte), man dies. … Hence the digestive fire is said to be at the base (mūlam) of all.

agni pl. refers not to digestive fire, but to the fire proper to the

× × ×

p. 655. 7

Verse 3. That food (anna) nourishes (poṣaka) the ~~tissues of the body (dhātu~~ the constitutive elements (dhātus[1]) of the body, the vital force (ojas), the strength (bala), and complexion (varṇa) (of the body), and that the digestive fire (agni) is the cause (hetu); for from food (āhāra) undigested (apakva) chyle (rasa) and ~~the~~ other (tissues) [do not come].

[1] N.B. the prasādas as well as the mala : but below only rasādayas = tissues are mentioned.

Verse 4. It is the breath (prāṇa) ~~which takes~~, whose business it is to seize the food (anna), that propels it into the abdomen (koṣṭha). When ~~gone~~ there, it is dissolved by ~~the~~ fluids (gastric juices) (dravaiḥ), and softened by an oily fluid (snehaḥ).

Note the pl. dravaiḥ; there are several kinds of juices in the stomach. Prāṇa here used not as "breath" proper, but as the downward propelling breeze (pavana) in the gullet.

Verse 5. The digestive fire (agni), blown upon by the digestive ~~fire~~ breeze (pavana) (samāna) (borborygmus), ~~blazing up~~ blazes up, and gradually (kāle) cooks the food that has been taken (bhuktam) equally and properly so as to serve to lengthen life.

Verse 6. The result of the food being thus cooked (in the stomach (āśaya)) by the ~~under~~ subjacent fire is to separate it into its useful (rasa) and waste (mala) parts, just as ~~grains of~~ rice and water is cooked in a vessel.

Verse 7. As the first result of the cooking (digesting) of the food with its 6 tastes, immediately after its being swallowed, ~~there~~ the froth which arises from its sweet ingredients turns into phlegm (humour).

Phlegm

(Verse 8.) Then, as it is being digested and decomposed there arises from the bitter (amla) ingredients, during its passage into the duodenum, connecting stomach with intestines out of the stomach, a clear (accha) fluid, the bile-humour

Bile

(Verse 9) Then, when it has reached the Intestines (pakvâśaya), and is being desiccated by the (digestive) fire and baked together into a regulated mass, there arises (the wind-humour (vâyu)* from its pungent (kaṭu) ingredients)

*: Note vâyu, not vâta, for the wind-humour.

Wind

(Verse 10) If the food (anna) is agreeable, being endowed with agreeable smell etc. (gandhâdi), it gratifies the (five) senses of the body, viz. the smelling etc (ghrâṇâdi) with (agreeable) smell etc. (gandhâdi)*

*: i.e. smell, sound, taste, touch, sight.

(Verse 11) The five kinds of fire, viz. those proper to earth, water, fire, air (vâyu), and ether (nabhas), respective digest the 5 properties (guṇa) of food, viz etc earthly etc.*

*: Nabhas, 'sky, ether'.

Cf v. 17.12. The idea is: five different strengths of fire needed to digest the five properties of food, and prepare them to nourish as nourishment of the five properties in the body.

(Verse 12) and thus nourish respectively the corresponding constituents (dravya-jâta) of the body; namely the earthy property of food nourishes the earthy constituent of the body), and so on with the rest.

} May be omitted

(Verse 13) Again (several versions) These elements (dhâtu) which constitute the body (deha-dhâtavo) are, by their respective fires digested so as to divide into by fires adapted to each, subjected to digestion [which separates out their nutritious portions from their waste (kiṭṭa) parts]

separation of prasâda & kiṭṭa

Rep. MS. (this is better) which separates out the nutritious (part of each dhâtu.

(Verse 14) From [the nutritious part of] chyle (rasa) is produced blood (rakta); from that (i.e. blood) flesh (mâṁsa); from flesh, fat (medas), from that (i.e. fat) bone; from bone, marrow (majjâ); from that (i.e. marrow) semen (śukra); all these being the products of the nutritious part (prasâda-jâ)

see p. 47 verse 16

(Verse 13) Such the seven body-building (deha-dhâtavo) elements (dhâtu) come out as the result of the (cooking) digesting each by its own species of fire, containing both a nutritious (prasâda) and a refuse (kiṭṭa) part.

(Verse 15) From Chyle (rasa) comes milk (stanya) as well as blood (rakta); from blood (asṛj) tendons (Kaṇḍarā) and ducts (sirā); from flesh (māṃsa) fat (vasā) as well as the six kinds of skin (tvac); from fat (medas), ligaments (snāyu) as well as joints (sandhi).

Sources of Milk from chyle
tendons, ducts } = blood
skin = flesh
ligaments, joints } = fat

However, the 3rd Resp. MS has a quite different reading.

(Verse 29) The refuse (kiṭṭa) of food (anna) is urine and faeces; that of chyle (rasa) is phlegm; that of blood (asṛj) is bile; that of flesh (māṃsa) is wind (Khā) are the impure secretions from the cavities (Khā, of nose, ear etc. of the intestines = flatus); that of adipose (medas) is sweat (sveda).

N.B. By phlegm and bile are not meant the "humours" so called; but the organic products, so called, the fluids of the liver & gall, the mucous of the air passages, the flatus of the intestines. But the "humours" would seem to be the sublimates of these organic products.

However, the statement in v. 29, does not quite agree with those given in vv. 7.8.9.

(Verse 30) The refuse of marrow (majjā) is the sneha (oily fluid) that is in the bone (asthi) is hair and down, that of marrow (majjā) is sneha (sebaceous fluid), that of the (six) skins is the dirt from the eyes (?)

This does not seem quite right, and the text uncertain.

(Verse 31) These then are the useful and the refuse parts of Nature's products with the processes of digestion.

(Verse 32) Some hold that the transformation of food and these Dhātus into the other takes place within six days and nights (ahorātra); and that it goes on uninterrupted like a wheel.

(Verse 33) For the chyle-tissue (rasa-dhātu) is through the vyāna whose proper business it is to diffuse, diffused in the body everywhere, at the same time, always perpetually.

(Verse 34) If the chyle in the course of its diffusion is obstructed anywhere from some defect in the lumen (Khā) of its duct, then it causes a disease (vikṛti) there, just like a cloud causes a downpour of rain in the sky (Khā).

verse 35. ~~Even So also it is with the Humours~~ The same result (disease) happens when ~~th~~ any of the humours (doṣa) is vitiated in any particular place

" " "

(Verse 16) "Then unto the Ātreya who said so, his disciple said:—	(Verse 21) To the disciple the teacher thus spoken replied the following answers:—
(Question I) How can Blood (rakta) arise in the body from chyle (rasa) which is different from it? Also of chyle there is no colour, how does it become red blood (raktatā)?	(Answer I) All the rasa of men ~~are said to~~ possess what is called tejas (energy). By the redness of the heat of bile ~~that~~ chyle (rasa) is turned into blood.
(Question II) Again from blood which is a liquid fluid (rasa), how does flesh which is solid (sthira) arise?	(Answer II) The combination of Earth, Fire, and Water enveloped in phlegm

Origin of Disease see Tr. p. 398 ff. also Tr. 980ff.

Tr. 508 p. 260, l. 6-7. If the channels (srotas) are in a normal state the body is not troubled with diseases (vikāra)	Normality of Ducts
p. 344, l. 24, Tr. 782 (see 25)	Normality of Srotas (in ducts)
p. 182, l. 26 (Tr. 389) health depends on digestive fire; also p. 655 l. 4 (Tr. 1441)	Importance of dig. fire
p. 128, l. 7ff (Tr. 260) health and disease depend on pure blood	Importance of Pure Blood
p. 65, l. 13 prāṇa when abnormal, causes disease	Prāṇa causing disease
p. 67, l. 7. (Tr. 137) bile phlegm wind when prākṛtibhūta are causes of health; otherwise of disease	Normality of doṣa

Veins:

1, superior & inferior vena cava 2
2, porta vein & hepatic veins 4
3, right & left brachio-cephalic and jugular 6
4, right and left renal & kidney 8
5, right and left spermatic 10

In trying to picture to ourselves the course of the blood vessels as they might appear to the outward sense, we must consider of 2 parts: 1, what we now know to be the actual condition, and what these anatomists with their imperfect and limited means of examination could have known only; 2, what we now know of the duct carrying vessels, i.e., arteries, blood and what they convey to the parts carrying nutrient matter (vein) from the heart to every part of the body) blood. But remembering these 2 points, with this proviso, the Ancients clear had a conception of the course of the blood-vessel what, though inaccurate in detail, was in its main features correct. They understood one (or possibly 2) trunk channels to issue from the heart, which divided into 10 branches, five on each side of the body. These 10 branches were the trunk channel — of which the two were all the vena cava, and which was apparently not distinguished from the pulmonary artery (also carrying venous blood). From this trunk channel, in its upward course, (1) branches off the two pulmonary branches feeding the lungs, and (2) the two brachio-cephalic branches feeding the neck and head. In its downward course, there arise (3) the two hypatic and portal branches, feeding the liver and spleen respectively, (4) the two renal branches, feeding the two kidneys; and, (5) the two spermatic branches, feeding the two testes.

seems that not quite as much as that
that they clearly perceived was a great and capacious
venous trunk (the ascending aorta) which divided into 10 large branches, issuing
from the left and from the right side of the heart.
These were, beginning from the heart, issuing from the
heart and dividing into 10 large branches. These
were (1) the vena cava inferior and superior, carrying
dark blood, and upward, (2) the portal and
hepatic veins, carrying from the from the vena cava
superior to the liver and spleen; (3) the two renal
veins, carrying to the two kidneys; (4) the spermatic
veins, carrying to the testes; (5) the two innominate
veins, running from the vena cava superior, upward
to the neck and head.

Bharadvāja p.1[14], at request of Ṛṣi went to Indra to get the Āyurved from him, who had got it from the Aśvins, these from Prajāpati, and he from Brahmā

Car. p.1, l.4-9; p.2[14];

Meeting on Meru (Pārśva, p.1, l.13) of Himālaya & Ṛṣis who commentated Bharadvāja

1, Aṅgiras
2, Jamadagni
3, Vasiṣṭha
4, Kāśyapa (see No.43)
5, Bhṛgu
6, Atreya; appar. identical with Punarvasu
7, Gotama
8, Sāṅkhya
9, Pulastya
10, Nārada
11, Asita
12, Agastya
13, Vāmadeva p.1[16], apparently King Vāmaka, p.

In 3d disputation

Dual { 14, Mārkaṇḍeya
15, Aśvalāyana

16. Pārāśi p1[17], called Maudgalya p.131[14] / p.140[5]; also Pārāśarya 140[5]

In 3d disputation. Also in 4th disputation (140[5])

17, Ātreya the Bhikṣu, p.1[17], p.132[20]

In 3d disputation

18, Bharadvāja, p.1[17] 2[14] 3[13]. called Kumāraśiras p.64[6] / p.140[6]

Founder of Medicine, p.2[25.26] 3[3] N.B. Kumāraśiras is different from Bharadvāja, the "guru" of Atreya, Comm. Sū. 191, L.4. He comes in the 2nd disputation (64[6]) and 4th disputation (140[6])

19, Kapiṣṭhala
Dual { 20, Viśvāmitra
21. Aśvarathya
22, Bhārgava
23, Cyavana
24. Abhijit
25. Bhārgya (or Śārgya)
Dual { 26. Śāṇḍilya
27, Kauṇḍilya
28. Vāṛṣi (or Vārkhi)
Dual { 29, Devala
30, Gālava

	31. Śāṅkṛtyāya p.1^{20} or Sāṅkṛtyāyana, p.64^{4}, called <u>Kṛśa</u> p.64^{4}	In 2nd Disputation
	32. Vaijavāpi	
	33. Kuśika, p.1^{20} p.132^{4}; or Kauśika, p.140^{5} (see No.45)	In 3d disputation (132^{4}). In 4th Disputation (140^{5})
	34. Bādarāyaṇa	
	35. Vaḍiśa p.1^{21}, called <u>Dhāmārgava</u> p.64^{14} (~~[illegible]~~) p.140^{9} 141^{3}	In 2nd disputation (64^{14}); also in 4th disputation (140^{9})
Dual	36. Śaraloman, p.1^{21} p.131^{18}	In 3d disputation
	37. Kāpya, p.1^{21} $66^{21.26}$; appar. called Bhadrakāpya p.132^{12} p.140^{4} p.151^{6}	In 2nd disputation (but see No.43, var.l.). Also in 3d disputation (132^{12}) Also in 4th disputation (140^{4}) 151^{6}
	38. Katyāyana	
	39. Kāṅkāyana p.1^{22} p.132^{16} called <u>Vāhlika-bhiṣag</u>, p.64^{10}, p.140^{9} 141^{5}	In 2nd Disputation, also in 3d disputation (132^{16}); in 4th disp. (140^{9})
	40. Kaikaśeya	
	41. Dhaumya	
Dual	42. Mārīci p.1^{22} p.66^{8}	In 2nd Disputation
	43. Kāśyapa (see No.4) p.1^{22} $66^{21.26}$	In 2nd Disputation (but see No.37, var.l.)
	44. Śarkarākṣa	
	45. Hiraṇyākṣa, p.1^{23}, p.131^{26}, p.140^{5} 140^{21} (called Kauśika)	In 3d disputation (p.131^{26}). In 4th disputation ($140^{5.21}$)
	46. Laugākṣi, or °<u>kṣa</u>	
	47. Paiṅgi	
	48. Śaunaka, p.2^{1} p.132^{4}	In 3d disputation
	49. Śākuneya, p.2^{1}, p.140^{4}	In 4th disputation
	50. Maitreya, p.52^{12} (supports threefold system, no use in rational treatment p.$52^{14.15}$	52^{21} <u>bheṣajam abheṣajena aviśiṣṭam</u>. <u>bheṣajam akiṃcitkaram</u>;
	51. Maimatāyani	
	52. Vaikhānasas	
Plural	53. The Bālakhilyas	
	54 And other Maharṣis.	
	55.(?) Vāryovida, ~~rāja~~, p.64^{13} 66^{8} (Rājarṣi); p.131^{22}; 140^{25} p.140^{7} (Rāja)	In 2nd disputation ~~[illegible]~~ (64^{13}); in 3d disp. (131^{22}); in 4th (140^{7})
	56.(?) Nimi, p.140^{8} (Vaidehi Rāja) or Vaideho) 141^{1}	In 4th disputation.

Ayurveda consists of knowledge of 1, causes (hetu), 2, symptoms (linga), 3, ausadhi, remedies.
Hence called triskandha = tripadika; and trisūtra = three aphorisms.

Car. p.2, l.23.24.25.

Punarvasu, p.3^{23} 52^{11} (= ātreya) 66^{26} (Ātreya) 67^{18}; 75^{7} (Cāndrabhāgin) p.120^{14} (simply guru); p.131$^{4.11}$ 132^{24}

Bharadvāja is the founder, p. 2$^{25.26}$; communicated to other Rsis p.3^{3}.

Later Punarvasu communicated to six disciples, viz.

1, Agnivesa p.24^{8}; Vahnivesa questions Ātreya p.67^{2} on views Sāṅkhya doctrine.
2, Bhela
3, Jatūkarṇa
4, Parāśara
5, Hārita
6, Kṣārapāṇi (or Khā°)

Hutāśavesa p.82^{13} on stores
p.91^{17} on diseases
p.120^{4} on treatment
p.133^{12} on food
p.138^{19} on wine
p.150, ^{20} on diet
p.155, ^{22}
p.250, l.27 being instructed, 252^{23}, 254^{16} 255^{7}

Later = atha; no distance of date indicated, nor in what relation Punarvasu stood to Bharadvāja, though comm. Su. p.191^{4} takes Bhar. to have been the guru of Punarvasu Ātreya.

Agnivesa was foremost, p.120^{4}; all were svādhyāya brahmans (p.120^{3})

All six equally well taught and equally intelligent, p.3^{13}, but Agnivesa was the first to compose a textbook (tantra-praṇetā) p.3^{14}; the others followed with their textbooks (tantra, p.3^{15})

Old system of haphazard treatment continued down to time of Ātreya. Its representative is Maitreya (p.52^{12}). Basis of a rational treatment is experience, knowledge of disease (curable, incurable) and appropriateness of remedies (p.53^{14})

Controversies:

1, Re cause of birth. No disputants named. (p.56, l.7)

3, Re function of vāta. Disputants: 1, Krśa Sāṅkrtyāyana $^{64^{4}}$, 2, Kumāraśira Bharadvāja $^{p.64^{5}}$; 3, Vāryovida Rajarsi $^{p.64^{13}\ 66^{8}}$; 4, Vadiśa Dhāmārgava $^{p.64^{14}}$ 5, Mārīci, 6, Kāśyapa or Kāpya; 7, Punarvasu

~~N.B. Mārīci represents the old school~~ The dispute is about the dominancy of the humours: Nos.1-4 for vāta, No.5 for bile, No.6 for phlegm, No.7 mediates, for all three. Concourse of Rsis approve of No.7

3, Re rājaja Origin of man and disease (puruṣa). Interrogator of assembly: Vāmaka, King of Kāśi (kāśipati). Disputants: 1, Pārīkṣi $^{131^{14}}$ Maudgalya; 2, Śaraloman $^{131^{18}}$. 3, Vāryovida $^{131^{22}}$. 4, Hiraṇyākṣa $^{131^{26}}$ and 5, Kuśika $^{132^{4}}$. 6, Śaunaka $^{132^{4}}$ 7, Bhadrakāpya $^{132^{12}}$. 8, Kāṅkāyana $^{132^{16}}$. 9, Ātreya $^{132^{20}}$ the Bhikṣu. (10) Punarvasu $^{132^{24}}$

No.1 soul; No.2 Mind; No.3, Rasa (drugs), and their source water. No.4. Sound or senses. No.5. Six elements. No.6. Father and mother. No.7 Nature No.8. Prajāpati. 9, Kala = time. No.10 mediates; cause is $^{133^{9}}$ food, diet.

4, Rê, Taste (rasa), i.e. vegetable drugs. Disputants: 1, Ātreya, 140a
2, Bhadrakāpya. 140a.14/15b 3, Śākunteya 140a.16 4, Maudgalya, called Pūrṇākṣa 140b
5, Hiraṇyākṣa 140b.21 called Kauśika 140b 6, Kumāra-śiras, called Kharavāja. 140b.23
7, Vāryovida (Rājā) 140b.25 8, Nimi (Vaidehi rāja). 140b (or Vaidehi 140b) 9, Vadiśa 140b/141a
10, Kāṅkāyana 140b/141a called Bāhlika, best of Balkh physicians
Elf Lain śruta-vayo-vṛddhā 140b "old in age and learning" or
"famous old men". Assembled in Caitraratha 140b grove

No.1 sixteen. No.2, one. No.3, two, No.4, three. No.5, four, No.6, five. No.7, six. No.8, seven. No.9. eight. No.10, innumerable. No.1, medicines, decrease per six, but different from No.7, for No.7 has: gurū, laghu, śītā, uṣṇa, snigdha, rukṣa, to touch No.1, has: madhura, amla, lavaṇa, kaṭu, tikta, kaṣāya, to taste

N.B. Bhadrakāpya addresses Agniveśa, who is with Ātreya p. 157b

Localities

Former disputes in Caitraratha grove, p. 140"

Punarvasu teaches Agniveśa etc, on banks of Ganges, in shade of groves, in summer, near Kāmpilya town on Pañcāla country. p. 248 2-5.

Punarvasu taught in Paṇa Saṅgā p. 475, l. 3.

do do on Mount Kailāsa, p. 638, l. 13, p. 568, l. 12

do do on northern slope of Himālaya p. 556, l. 9
uttara himavatas pārśve

The 10 physiological parts of the body

Parallel notices

The Heart, relation to Chest and Epigastrium

hṛdaya distinct from uras, p. 440 l. 15 (hṛdaya-ūrasoḥ)
" stāna of cetas, p. 128 l. 13; also ojas p. 193 l. 2

Kiṭṭāya: Liver: Spleen

Kiṭṭa abdominal cavity, between flesh and skin p. 639 l. 5 (Tr. 1334)
640, l. 6 (Tr. 1336)

No. 2 in connection with alimentary canal; but not Nos. 1 and 3.
with reference to blood, and urine.

1, 10 Kyalāna of prāṇa, p. 352, l. 12 (Tr. 806), p. 189, l. 13 (Tr. 402)

2, 3 parts of stomach, p. 61, l. 15-20 (Tr. 127), p. 24. 30

p. 687, l. 3. Hṛdaya connected with rasavāhi;
also liver and spleen in pitta-sthāna

3) Divisions of blood, p. 110, l. 6 also p. 98, l. 11. 25 ff. p. 6
See also p. 244, l. 22 (Tr. 464 top) p. 12

Kloma distinct from Kaṇṭha, see p. 689, l. 11

4) Derivation from father and mother, p. 326, l. 9. 16 (Tr. 718-9)

Urah srotah, name of windpipe p. 689, l. 18

5) Parts of Trunk. p. 352, l. 14-17 (Tr. 806), p. 27

purīṣāśaya, p. 567, l. 1.

6) Seat of Doṣa, p. 110, l. 6 (Tr. 221), see p. 2

hṛdaya (sthāna of all doṣa, also of ojas, p. 584, l. 15 (Tr. 1672)
also of pitta, ib.

7) See special paper on Trunk. &c.

8) Seat of Kalma, p. 484, l. 5. 8 (Tr. 1168)

9) Seat of udara, p. 640, l. 4 (Tr. 1335)

10) nābhi anupakramāśaya for āmāśaya anupakrama p. 668, l. 20

Āmāśaya as the seat of phlegm see Tr. p. 1596, Text p. 573, l. 25
Pakvāśaya as the seat of wind see ibid., p. 574, l. 2

10 Āyatana ~~or~~ areas of functioning, ~~p. 352, l.~~ 11

prāṇāyatana p.352 (Tr. 606)	p. 40 p. 489 (Tr. 402)
1, mūrdhā	śaṅkhau (Śākhā) marma (1)
2, kaṇṭha	kaṇṭha
3, hṛdaya	marma (2)
4, nābhi	6 marma. deest
5, guda	guda
6, vasti	marma (3)
7, ojaḥ	ojas
8, śukra	śukra
9, śoṇita	rakta
10, māṁsa	(gudā.)
	see p. 61 l. 15 for other version.

These are the 10 areas of lifebreath, also the 10 areas for attack of disease, p. 61, l. 15 (Tr. 127) and 10 areas for course of doṣa, p. 100 l. 5 (Tr. 199)

see p. 29. 30

Prāṇa p. 3

Prāṇa p. 2

p. 6. 34

p. 110, l. 6 (Tr. 221)

1, vasti
2, purīṣādhāna
3, kaṭi
4, sakthinī
5, pādau
6, asthīni
7, 8, pakvāśaye especially
} ~~8~~ seats of vāta

9, sveda (1)
10, rasa (2)
11, lasikā (3)
12, rudhira (4)
13, āmāśaya (5) especially
} 5 seats of bile

14, uras (1)
15, śiras (2)
16, grīva (3)
17, parvāṇi (4)
18, āmāśaya (5)
19, medas (6)
} 6 seats of phlegm

p. 27

(Tr. 606)

p. 352, l. 14

1, nābhi
2, hṛdaya
3, kloma
4, yakṛt
5, plīhā
6, vṛkkau
7, vasti
8, purīṣādhāra
9, āmāśaya
10, pakvāśaya
11, uttaraguda
12, adharaguda
13, kṣudrāntra
14, sthūlāntra
15, vapāvahana
} 15 parts of Koṣṭha.

Constituents of fœtus.

1, ~~Results~~ Concurrence of semen and blood
2, jīva as effect of Karma, entry of
} result ~~[illegible]~~ embryo
p. 328, l. 3. 4 (Tr. 714)

Embryo born of (1, mother } blood } see p. 324, l. 24. 25 (Tr. 325, l. 4

2, father } semen

(jīva) 3, ātma } constituents of ~~fœtus~~ embryo p. 324, l. 24. 25

4, sātmya } effected (aupapādika) by sattva = Karma

p. 324, l. 20 evident nourishment { 5, rasa

6, sattva-aupapādika: the Karma.

1, parts from from mother p. 326, l. 9.

2, do from father p. 326, l. 16

3, { the antar-ātmā transmitted from external, universal ātmā p. 326, l. 18 ff (na tu ātmā vyāpaka Comm. Sar. p. 68, l. 10) which develops from youth to age. advantageous conditions (1, choice of parents, 2, period of life, 3, physical states, 4, wind (prāṇāpāna) and its function of propelling & holding together, 5, feature, voice, complexion.

NB. the ~~eternal~~ universal ātmā descends as antarātmā, but the particular person into which it descends, depends on the sattva, the predestined manas by Karma (Comm. Sar. p. 68, l. 12, Karma-vaśāt), sattva is therefore aupapādika the efficient cause, which binds the universal ātmā to the particular tangible body (spṛk-śarīra)

New York Medical Journal

INCORPORATING THE

Philadelphia Medical Journal and The Medical News

Published by A. R. ELLIOTT PUBLISHING COMPANY, 66 West Broadway, New York.

Vol. XCVI, No. 2.
Whole No. 1754.

A Weekly Review of Medicine, Established 1843

YEARLY SUBSCRIPTION, $5.00.
SINGLE COPIES, FIFTEEN CENTS.

PHILADELPHIA — NEW YORK, SATURDAY, JULY 13, 1912. — CHICAGO

an illness, which will brook no delay in treatment, he begins taking drugs for any slow or chronic ailment from which he may be suffering, by consulting the stars, whose auspicious conjunctive influence will help its cure. He has a science upon which this belief is founded, a science which modern medical men will deride, but which, if deeply analyzed, in a truly serious and inquiring spirit, may not prove to be so very superstitious after all. According to the Hindu astrology, the whole earth, including men and animals, and products of the earth, is subject to the influences of the heavenly bodies. The more naturally man lives, the more he is in harmony with the workings of the immutable laws of Nature, over which the heavenly bodies rule. The moment he lives in defiance of these laws he is out of harmony with their workings and, therefore, out of harmony with their controlling forces, the heavenly bodies, the result of which manifests itself in disease. The stars are therefore consulted for selecting a moment in which to begin taking medicine—a moment in which their influences will be propitious in bringing about good results; put the mental and physical temperament, through the medicine, in harmony again with the laws of Nature, which is health. The philosophy of taking medicine under the benign auspices of the stars, is that man's actions are as much part of his body as his limbs and organs, and limbs and organs and their actions are all under the influence of the heavenly bodies.

The Hindus have reduced every branch of thought or doctrine to a system or science of their own, which Western scientists might do well to study, to their possibly immense profit. While Western medical science regards the human body from a severely physical point of view, and calls it only so much animal matter, the Hindu system of medical science as embodied in the *Ayur Veda*, or Science of Life, holds that the human body is composed not only of animated matter, but also of a mind and a soul, which latter is the source of the animation of both mind and material body. The *Ayur Veda* says man has three bodies, the physical, mental, and the spiritual. The spiritual is encased in the mental (otherwise called astral) and the mental is encased in the physical, like a sheath en-

[illegible] by touch with those of materialistic foreigners, material drugs are resorted to at once in cases of illness. If material drugs fail to cure, then only mental or physical treatment is resorted to in the shape of chanted formulas of mystic words, performing ceremonies to please the particular star under whose hostile influence the disease is found—by consulting the patient's horoscope—to have been brought about. If these fail to cure, then the blessing or magnetic touch of some holy man is sought for, failing to secure which continual prayers to the Supreme God are made, along with continual reading of some holy book by a learned and spiritual priest.

Spirituality is health according to the Hindus. Perfect spirituality means perfect health. Spirituality is manifested in the expression of the ensculed mind—the universal and the individual mind—while you can draw spiritual magnetism for your health from the same storehouse. There are saints who have thoroughly ensouled their mind by concentrating it upon the centre, the focus of spirituality. One word from their lips can drive away disease through a spiritual electrical word, or wave, as it were, and make you perfectly healthy. This, from the Hindu standpoint, accounts for the miraculous healings of Jesus Christ. The next best source of securing spiritual healing is to receive the touch from the hand of spiritual men just a little less developed than the saint whose very command is potent enough to kill all disease.

The very best source for obtaining a remedy is from the vibrations of sacred songs and music, and what is called in India *ecstatic dance,* in which the dancers sing until the spirit of the divine song moves them to dance.

The next best method is to secure health through faith. That is faith cure. If you have an intense faith in any divinity or saint, or even in any man, this concentration of mind will bring about equilibrium in mental and physical disorders.

The last, and according to the Hindus, the worst form of treatment—the worst compared with the foregoing processes—is the use of material drugs; but the Hindu holds that even what the modern world calls medicinal plants and shrubs are really spiritual plants and shrubs. Spirituality pervades the whole creation, but it manifests itself in some

10 āyatana or areas of [illegible] p. 352 (Tr. 606) p. 92 p. 6.34 p. 27 [Tr. 006] p. 352, l. 14

mūrdha ā. mūrdhā p. 352 (Tr. 606) p. 602 l. 11 p. 169 (Tr. 402) saṁkhau (śaṅkhā) 1, vasti 1, nābhi

Prāṇa p. 2

see p. 61 l. 15 for other version.

Hence are the 10 areas of life-breath, also
the 10 areas for attack of disease, and p. 61, l. 15 (Tr. 127)
see p. 29.30 10 areas for cause of dosa, p. 100 l. 5 (Tr. 199)
Prāṇa p. 2

(12, rudhira, 4) (13, āmāśaya, 5) bile (11, uttarapada, 12, adharapada, 13, Kṣudrāntra, 14, sthūlāntra)

especially
(14, uras, 1) (15, śiras, 2) (16, grīva, 3) (17, parvāṇi, 4) (18, āmāśaya, 5) (19, medas, 6) 6 seats of, 15, vyāpāvahana phlegm

Constituents of prajā.

1, Semen and blood } result
2, Jīva as effect of Karma } p. 328, l. 3.4 (Tr. 714)

Embryo born of (1, mother) (3, father) (Jīva) (3, ātma) (4, indriya) (5, rasa) } blood, semen } constituents of embryo p. 324, l. 24.25 (Tr. 325, l. 4)
p. 324 l. 20 about nourishment
(6, sattva-anupapādaka: the Karma. } effects (anupapādaka) by sattva = Karma

1, pāṭis from from mother p. 326, l. 9.
2, do from father p. 326, l. 16
3, the antar-ātmā transmits from external, universal ātmā 326, l. 18 ff
na tv ātmā vyāpaka Commentar. p. 68, l. 10
said develops from youth to age.
adventitious conditions by choice of parents, 2, period of life, 3, physical states, 4, Wind (prāṇāpāna) and its function of propelling & bodily bodies, 5, feature, voice, complexion.
NB - the universal ātmā descends as antarātmā, but the particular person at death ascends, depends on the sattva, the predestined manas by Karma (Comm. Sūtr. p. 68, l. 12, Karma-vaśāt), sattva is therefore anupapādaka Reasoning cause, which binds the universal ātmā to the particular transmigrating body (Yogi-śarīra)

THE CURIOSITIES OF HINDU MEDICINE.

BY BABA PREMANAND BHARÂTI,
Calcutta, Bengal.

From the crown of his head to the sole of his foot, the Hindu is nothing if not spiritual in his ideas. This is neither a joke nor a metaphor, but A stern fact. On the crown of each orthodox Hindu's head is a tuft of long hair which his religion enjoins him to keep, and which is intended to be a conductor of spiritual electricity out of and into his body, while a strictly orthodox Brahman is barefooted, or if he wears shoes they must be of a material which is a conductor of the best magnetism of mother earth—shoes made of Kusha grass or deer skin.

No wonder the Hindu's system of medicine is based on the highest spiritual idea too. He doctors and drugs himself spiritually. Except in the case of an illness, which will brook no delay in treatment, he begins taking drugs for any slow or chronic ailment from which he may be suffering, by consulting the stars, whose auspicious conjunctive influence will help its cure. He has a science upon which this belief is founded, a science which modern medical men will deride, but which, if deeply analyzed, in a truly serious and inquiring spirit, may not prove to be so very superstitious after all. According to the Hindu astrology, the whole earth, including men and animals, and products of the earth, is subject to the influences of the heavenly bodies. The more naturally man lives, the more he is in harmony with the workings of the immutable laws of Nature, over which the heavenly bodies rule. The moment he lives in defiance of these laws he is out of harmony with their workings and, therefore, out of harmony with their controlling forces, the heavenly bodies, the result of which manifests itself in disease. The stars are therefore consulted for selecting a moment in which to begin taking medicine—a moment in which their influences will be propitious in bringing about good results; put the mental and physical temperament, through the medicine, in harmony again with the laws of Nature, which is health. The philosophy of taking medicine under the benign auspices of the stars, is that man's actions are as much part of his body as his limbs and organs, and limbs and organs and their actions are all under the influence of the heavenly bodies.

The Hindus have reduced every branch of thought or doctrine to a system or science of their own, which Western scientists might do well to study, to their possibly immense profit. While Western medical science regards the human body from a severely physical point of view, and calls it only so much animal matter, the Hindu system of medical science as embodied in the *Ayur Veda*, or Science of Life, holds that the human body is composed not only of animated matter, but also of a mind and a soul, which latter is the source of the animation of both mind and material body. The *Ayur Veda* says man has three bodies, the physical, mental, and the spiritual. The spiritual is encased in the mental (otherwise called astral) and the mental is encased in the physical, like a sheath encased in a sheath. The *Ayur Veda,* in dealing with the causes and cures of diseases to which man is subject, begins with those of the physical body, then it treats the causes and cures of the diseases of the mental body and ends with those of the spiritual body. The greatest disease of humanity, it says, is its liability to rebirth, which is caused by the mind's attraction to external objects and its cure by diverting its outward attraction to the inward soul, unbroken concentration upon which alone stops rebirth.

Hindu medicines, therefore, are of three kinds, spiritual, mental, and material. In the ages long gone by very little material drugs were used. Fasting, or regulation of diet, along with prayers to the Deity and the blessings of holy men were generally thought and found to be the best method for curing ailments. Now, people's minds having become grossly materialistic by touch with those of materialistic foreigners, material drugs are resorted to at once in cases of illness. If material drugs fail to cure, then only mental or physical treatment is resorted to in the shape of chanted formulas of mystic words, performing ceremonies to please the particular star under whose hostile influence the disease is found—by consulting the patient's horoscope—to have been brought about. If these fail to cure, then the blessing or magnetic touch of some holy man is sought for, failing to secure which continual prayers to the Supreme God are made, along with continual reading of some holy book by a learned and spiritual priest.

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The last, and according to the Hindus, the worst form of treatment—the worst compared with the foregoing processes—is the use of material drugs; but the Hindu holds that even what the modern world calls medicinal plants and shrubs are really spiritual plants and shrubs. Spirituality pervades the whole creation, but it manifests itself in some

special forms of life, such as in plants and shrubs. Like spiritual men there are spiritual animals, as well as spiritual trees and plants.

I had the pleasure and privilege of residing with a very highly developed spiritual man. I have not met with another man of such extraordinary genius and accomplishments in the East or West. He has not only read all Sanskrit works from the Vedas downward, all standard Sanskrit literature, religious, scientific, medical, moral, etc., but also is master as well of all branches of Western science and philosophy, old and new. What is more, he is a practical philosopher and physician. While living a life of genuine saintliness, in fact living, as far as is possible in this age, the truths of the philosophy he has studied, he treats sick people, the poor only, without charge, and distributes medicines free as well. His cures are wonderful. Almost all cases he takes up he cures, and this reputation draws rich people to his doors, which, however, are never opened to them for any amount of money. I have seen him go out to treat a poor patient in the depth of night under pelting rain, and do his utmost for the patient, even to the extent of giving him money to buy proper diet. To the calls of the rich, however, he never responds.

The system of treatment of this wonderful man is not always the same. The reason is that he knows so many systems so thoroughly—regular medicine and what is useful in homeopathy, biochemistry, *Ayur Veda,* etc. When a poor patient is brought to his home he examines him both according to Eastern and Western methods. Then he makes a diagnosis, the wonderful accuracy of which is the main source of the success of his cures. Once the diagnosis is made, it does not matter to him which system of medicine he may take to bring about a cure. One particular advantage he possesses along with so many others—his power of magnetism, born of his truly saintly life.

Miracles of cure are rare now, at least where the influence of Western civilization prevails. More than a quarter of a century ago, the introduction of allopathic drugs and system of treatment, helped by the first influence of English education, threatened to kill the practice of indigenous physicians and to stop the use of indigenous drugs. Both are having a good time of it now, the glamour of English education having passed away and ancient Hindu thought having revived. People have begun to think that their own country's medicinal shrubs and plants and roots are best suited to their constitutions, so that native drugs and physicians are largely patronized, and their competition with foreign drugs and doctors is very keen. Vaidyas or Vaids or Kabiraji, as Hindu physicians are called in Upper India and Bengal, are having an immense practice, thanks to the high charges of modern doctors and drugs. Before the introduction of Western medicine even the best of these Hindu physicians generally charged a fee of one rupee (thirty-two cents) and nothing whatever for pills and powders and but little for expensive oils and medicines. Now they charge not only as high fees as the doctors, and at times even higher, but also exorbitant prices for their prescriptions, which are sometimes double or treble those charged by Western drug stores. Formerly these Vaids never had a dispensary or drug store, but used to prepare their medicines in their own homes, and carried a quantity of pills and powders mostly in use in a little bundle or a box as they went from one patient to another, either on foot or in a palanquin. Now they have opened regular dispensing or "medical halls," as they are called, like Western drug stores, where medicines are prepared and arranged in show cases and prescriptions dispensed after American methods.

Some of these native physicians have accumulated very large fortunes by the sale of their drugs, oils, and ointments; a few have become millionaires. These enormous profits have excited the greed of other physicians and of quacks and other capitalists. Kabiraji drug stores have in consequence sprung up all over the land, especially in large towns and cities. In all these places drugs are prepared under the superintendence of some Kabiraj according to the formulas of his different medicine books, and sold at all sorts of prices, generally high. In mixing the drugs these quacks and adventurers are far from scrupulous and resort even to cheap questionable substitutes of high priced drugs, a trick very often practised. In fever pills, in many cases, quinine is surreptitiously mixed with other indigenous drugs, and these pills are sold as pure indigenous medicines.

The enormous sale of these Kabiraji drugs is due to advertisement. Not only are advertisements put in all leading Anglonative and vernacular papers, but a catalogue, sandwiched into a Hindu almanac, is prepared and circulated broadcast throughout the country. In these advertisements the myriad virtues of the medicines and drugs are set forth in glowing terms which, in some cases, are the despair of the smartest advertisement writers of America. From leading to the finding of a lost cow, to use a Hindu saying, to securing the blessings of heavenly ecstasy, the use of these medicines is sure to bring results. Carlyle's ninety-nine per cent. includes the population of India along with the rest of the globe, hence the expense of these advertisements is not incurred in vain.

Yet there are very learned and honest Kabiraji still in the country and they form the backbone of the profession. They hate to advertise and are very scrupulous in the preparation of their drugs according to the exact formulas and use of genuine ingredients. No wonder they prove the efficiency of their drugs, as they are skilled in diagnosis. These men and their medicines compete with European physicians and European drugs, and thus divide the field equally between the Western and Eastern systems.

Medical Students in France.—Bonnette, discussing in *Presse médicale* for May 18, 1912, the military requirements of naturalized citizens of France, points out that there were registered on January 11th, in the various educational institutions of France, 8,265 medical students, 7,400 men, of whom 742 were foreigners, mostly Turks, Bulgarians, and Rumanians, and 865 women, of whom 357 were French and 508 foreign.